Dell Latitude 6430u
Owner's Manual

Regulatory Model: P36G
Regulatory Type: P36G001

Notes, Cautions, and Warnings

NOTE: A NOTE indicates important information that helps you make better use of your computer.

CAUTION: A CAUTION indicates either potential damage to hardware or loss of data and tells you how to avoid the problem.

WARNING: A WARNING indicates a potential for property damage, personal injury, or death.

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1

Working on Your Computer

Before Working Inside Your Computer

Use the following safety guidelines to help protect your computer from potential damage and to help to ensure your personal safety. Unless otherwise noted, each procedure included in this document assumes that the following conditions exist:

- You have read the safety information that shipped with your computer.
- A component can be replaced or--if purchased separately--installed by performing the removal procedure in reverse order.

WARNING: Before working inside your computer, read the safety information that shipped with your computer. For additional safety best practices information, see the Regulatory Compliance Homepage at www.dell.com/regulatory_compliance

CAUTION: Many repairs may only be done by a certified service technician. You should only perform troubleshooting and simple repairs as authorized in your product documentation, or as directed by the online or telephone service and support team. Damage due to servicing that is not authorized by Dell is not covered by your warranty. Read and follow the safety instructions that came with the product.

CAUTION: To avoid electrostatic discharge, ground yourself by using a wrist grounding strap or by periodically touching an unpainted metal surface, such as a connector on the back of the computer.

CAUTION: Handle components and cards with care. Do not touch the components or contacts on a card. Hold a card by its edges or by its metal mounting bracket. Hold a component such as a processor by its edges, not by its pins.

CAUTION: When you disconnect a cable, pull on its connector or on its pull-tab, not on the cable itself. Some cables have connectors with locking tabs; if you are disconnecting this type of cable, press in on the locking tabs before you disconnect the cable. As you pull connectors apart, keep them evenly aligned to avoid bending any connector pins. Also, before you connect a cable, ensure that both connectors are correctly oriented and aligned.

NOTE: The color of your computer and certain components may appear differently than shown in this document.

To avoid damaging your computer, perform the following steps before you begin working inside the computer.

1. Ensure that your work surface is flat and clean to prevent the computer cover from being scratched.
2. Turn off your computer (see Turning Off Your Computer).

   CAUTION: To disconnect a network cable, first unplug the cable from your computer and then unplug the cable from the network device.
3. Disconnect all network cables from the computer.
4. Disconnect your computer and all attached devices from their electrical outlets.
5. Press and hold the power button while the computer is unplugged to ground the system board.
6. Remove the cover.

CAUTION: Before touching anything inside your computer, ground yourself by touching an unpainted metal surface, such as the metal at the back of the computer. While you work, periodically touch an unpainted metal surface to dissipate static electricity, which could harm internal components.

Turning Off Your Computer

CAUTION: To avoid losing data, save and close all open files and exit all open programs before you turn off your computer.

1. Shut down the operating system:
   - In Windows 8:
     * Using a touch-enabled device:
       a. Swipe in from the right edge of the screen, opening the Charms menu and select **Settings**.
       b. Select the and then select **Shut down**
     * Using a mouse:
       a. Point to upper-right corner of the screen and click **Settings**.
       b. Click the and select **Shut down**.
   - In Windows 7:
     1. Click **Start**.
     2. Click **Shut Down.**

     or

     1. Click **Start**.
     2. Click the arrow in the lower-right corner of the **Start** menu as shown below, and then click **Shut Down.**.

2. Ensure that the computer and all attached devices are turned off. If your computer and attached devices did not automatically turn off when you shut down your operating system, press and hold the power button for about 6 seconds to turn them off.

After Working Inside Your Computer

After you complete any replacement procedure, ensure you connect any external devices, cards, and cables before turning on your computer.

1. Replace the cover.

   CAUTION: To connect a network cable, first plug the cable into the network device and then plug it into the computer.
2. Connect any telephone or network cables to your computer.
3. Connect your computer and all attached devices to their electrical outlets.
4. Turn on your computer.
5. If required, verify that the computer works correctly by running the Dell Diagnostics.

2

Removing and Installing Components

This section provides detailed information on how to remove or install the components from your computer.

Recommended Tools

The procedures in this document may require the following tools:

- Small flat-blade screwdriver
- Phillips screwdriver
- Small plastic scribe

System Overview

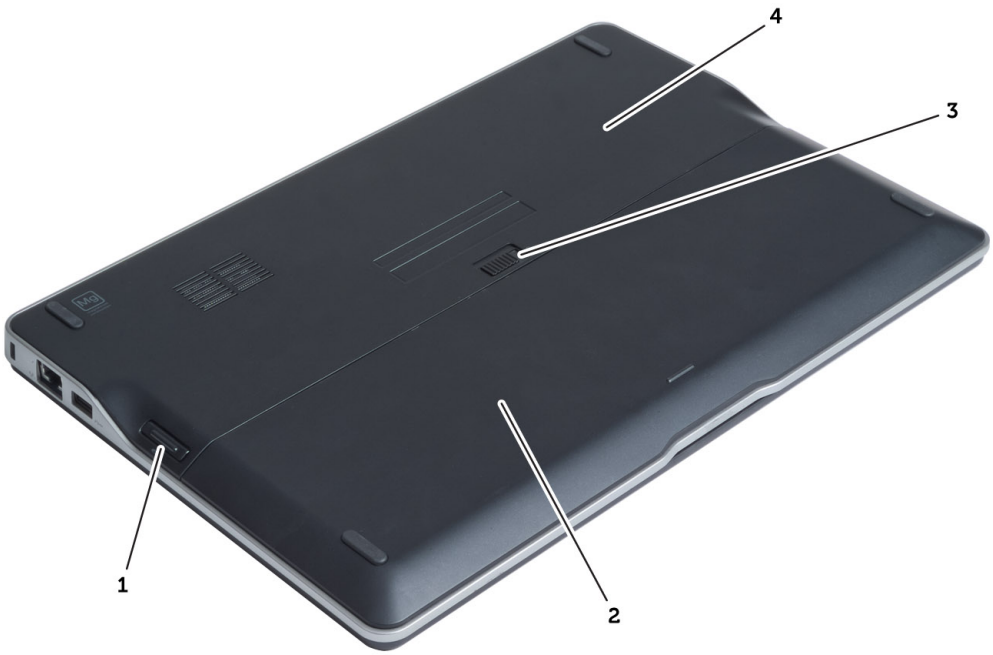


Figure 1. Back view

1. secure digital (SD) card
2. battery
3. battery release latch
4. base cover

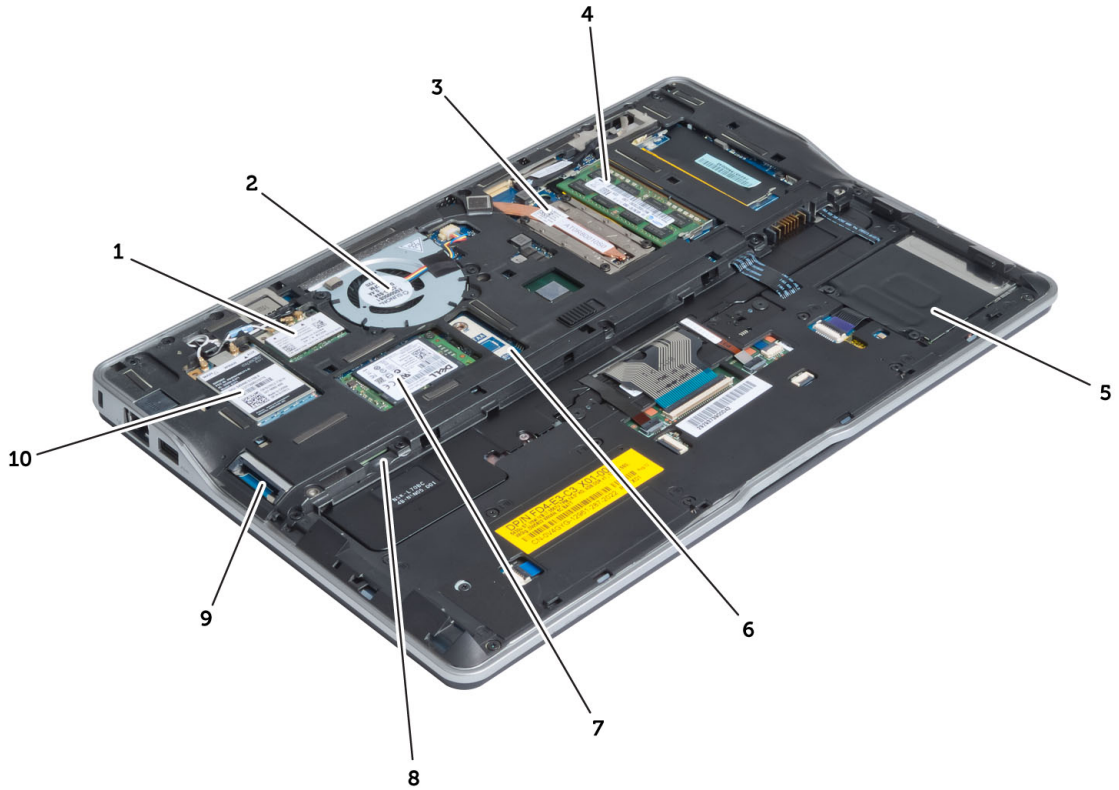


Figure 2. Inside view — back

1. wireless local area network (WLAN) / wireless gigabit alliance (WiGig) card
2. system fan
3. thermal module
4. memory
5. smart card cage
6. TAA board
7. mSATA SSD card
8. subscriber identification module (SIM) card slot
9. SD card slot
10. wireless wide area network (WWAN) card

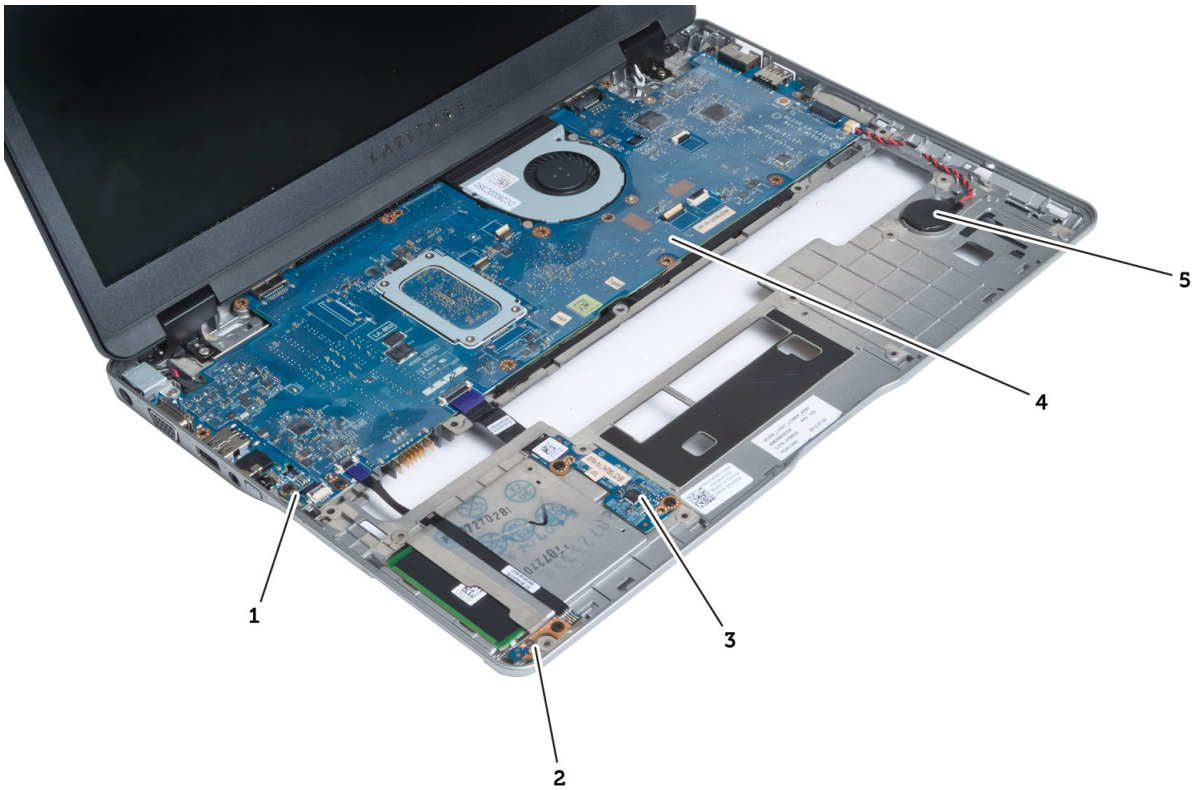


Figure 3. Inside view — front

1. sniffer board
2. hall sensor
3. smart card board
4. system board
5. coin-cell battery

Removing the Secure Digital (SD) Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Press in on the SD card to release it from the computer.

3. Slide the SD card out of the computer.

Installing the Secure Digital (SD) Card

1. Push the SD card into the compartment until it clicks into place.
2. Follow the procedures in *After Working Inside Your Computer*.

Removing the Battery

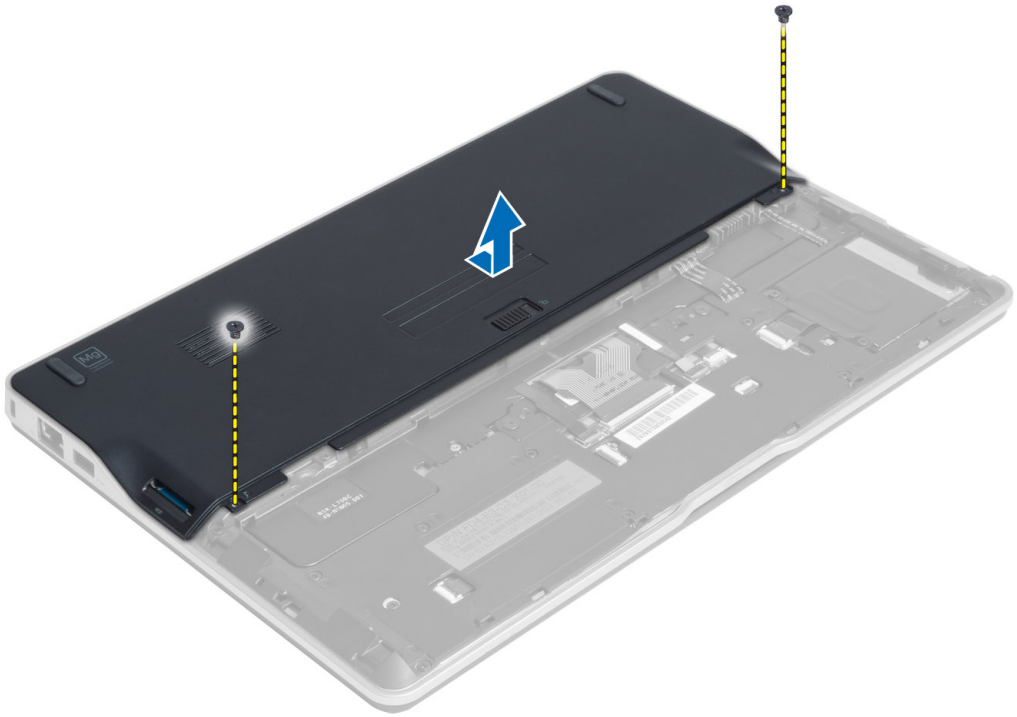
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Slide the release latch to unlock the battery, and slide to remove the battery from the computer.

Installing the Battery

1. Slide the battery into its slot until it clicks into place.
2. Follow the procedures in *After Working Inside Your Computer.*

Removing the Base Cover

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
3. Remove the screws that secure the base cover to the computer, and slide the base cover and remove it.

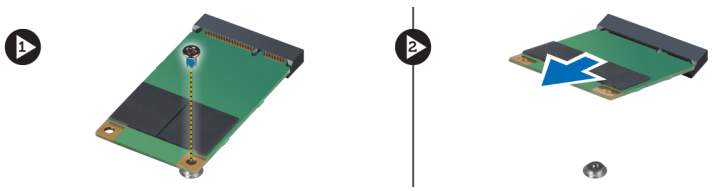


Installing the Base Cover

1. Place the base cover to align with the screw holes on the computer.
2. Tighten the screws to secure the base cover to the computer.
3. Install:
   a) SD card
   b) battery
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the mSATA SSD Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
3. Remove the screw that secures the mSATA SSD card and remove the mSATA SSD card from the computer.

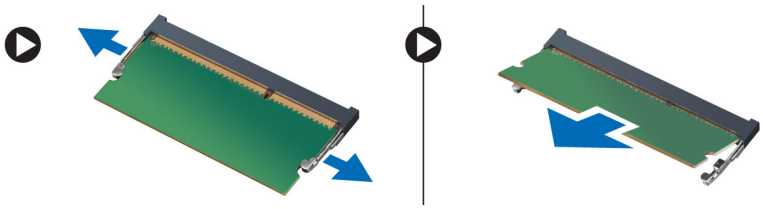


Installing the mSATA SSD Card

1. Place the mSATA SSD card in its slot in the computer.
2. Tighten the screw to secure the mSATA SSD card to the computer.
3. Install:
   a) base cover
   b) SD card
   c) battery
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Memory

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
3. Pry the securing clips away from the memory module until it pops up. Remove the memory module from its connector on the system board.



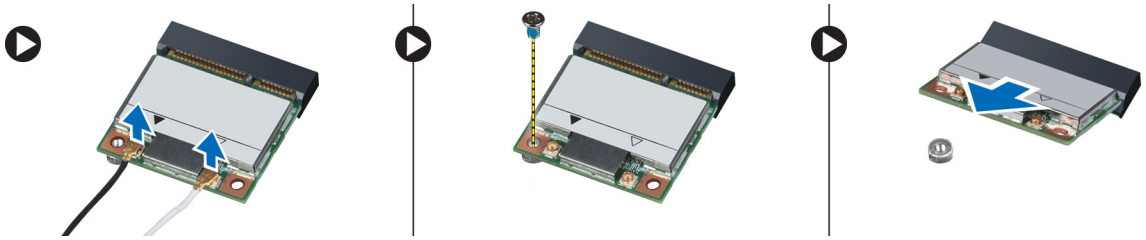
Installing the Memory

1. Insert the memory module into the memory socket.
2. Press the memory module down until it clicks into place.
3. Install:
   a) base cover
   b) SD card
   c) battery
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the WLAN / WiGig Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
3. Disconnect the antenna cables from the WLAN/WiGig card and remove the screw that secures the WLAN/WiGig card to the computer. Remove the WLAN/WiGig card from the computer.

NOTE: The WiGig card has three antenna cables.



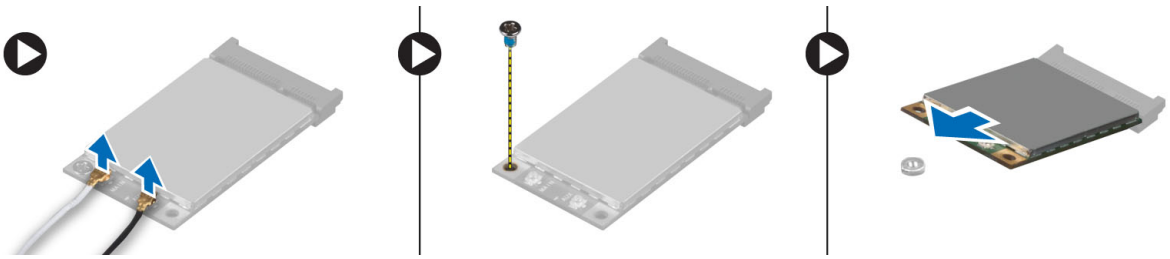
Installing the WLAN / WiGig Card

1. Insert the WLAN/WiGig card into its connector at a 45–degree angle into its slot.
2. Press the WLAN/WiGig card down and tighten the screw to secure the WLAN/WiGig card to the computer.
3. Connect the antenna cables to their respective connectors marked on the WLAN/WiGig card.

   NOTE: The WiGig card has three antenna cables that must be connected during installation.
4. Install:
   a) base cover
   b) SD card
   c) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Wireless Wide Area network (WWAN) Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
3. Disconnect the antenna cables from the WWAN card.
4. Remove the screw that secures the WWAN card to the computer.
5. Disconnect the antenna cables from the WWAN card. Remove the screw that secures the WWAN card to the computer and remove it.



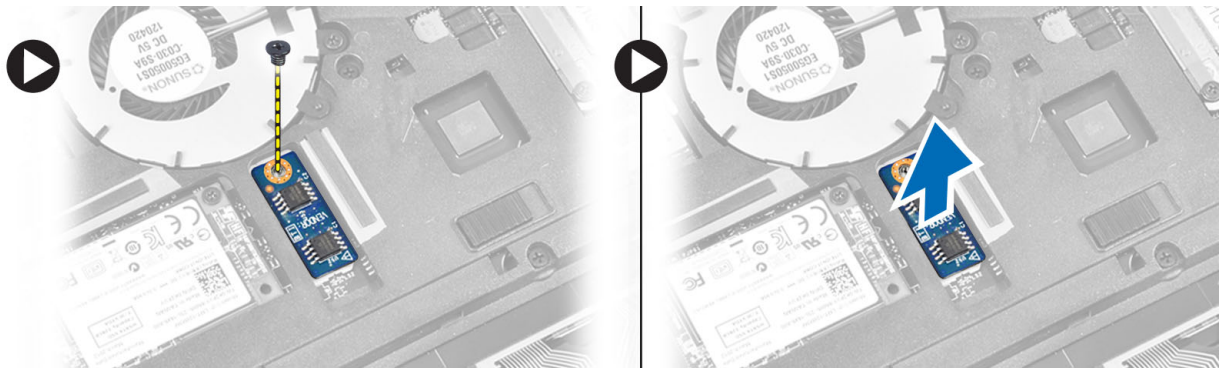
Installing the WWAN Card

1. Place the WWAN card in its slot in the system board.
2. Press the WWAN card down and tighten the screw to secure the WWAN card to the computer.
3. Connect the antenna cables to their respective connectors marked on the WWAN card.

4. Install:
   a) base cover
   b) SD card
   c) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the TAA Board

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
3. Remove the screw that secures the TAA board to the computer. Remove the TAA board from its slot on the system board.

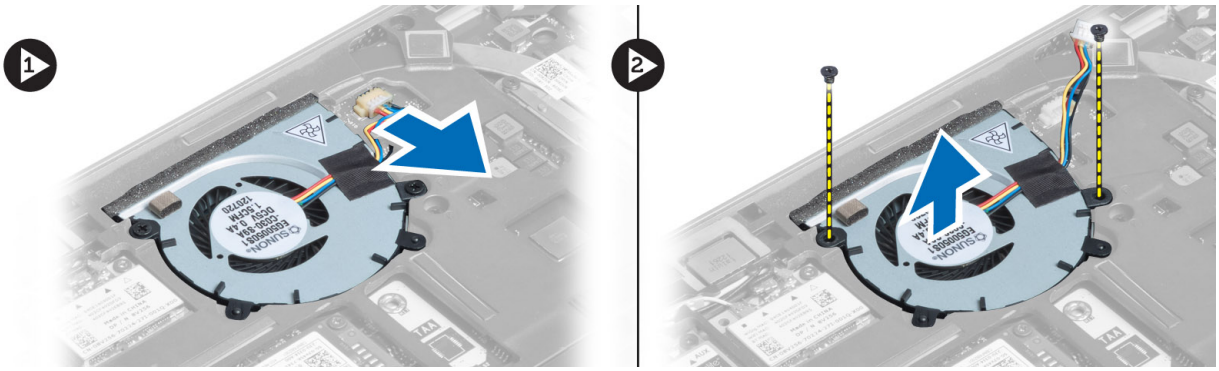


Installing the TAA Board

1. Place the TAA board in its slot on the system board.
2. Tighten the screw that secures the TAA board to the computer.
3. Install:
   a) base cover
   b) SD card
   c) battery
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the System Fan

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
3. Disconnect the system fan cable. Remove the screws that secure the system fan to the computer, and remove the system fan from the computer.

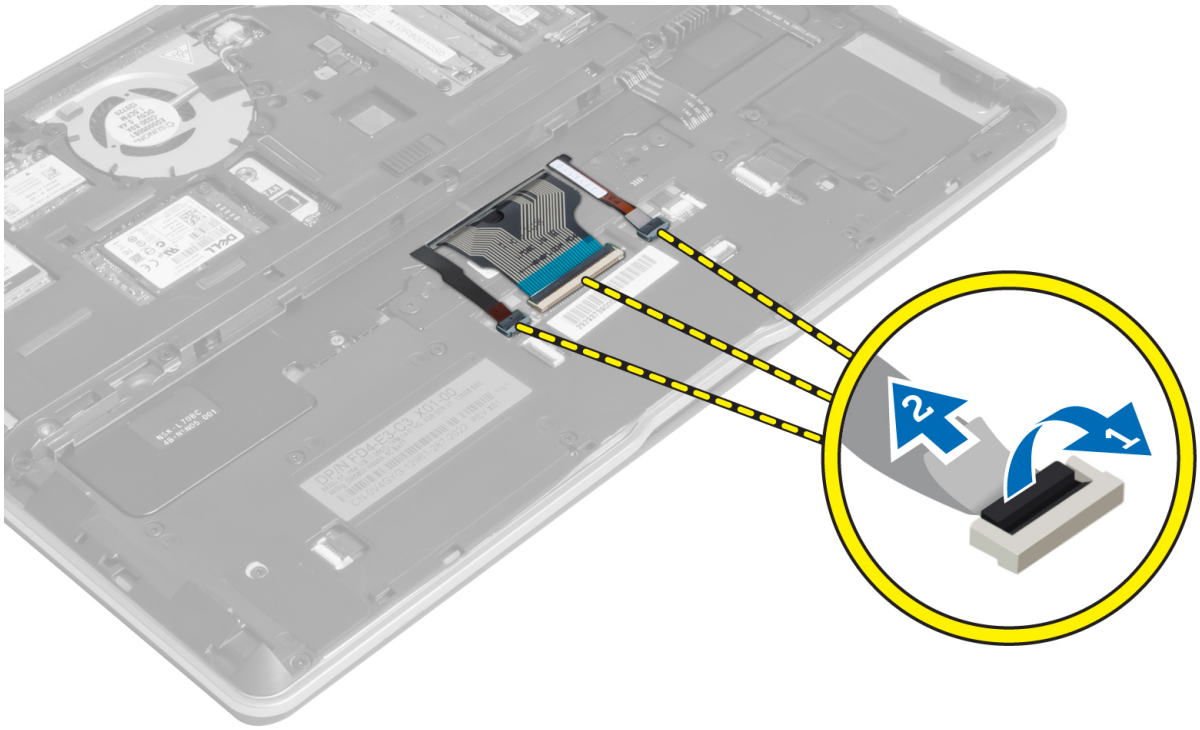


Installing the System Fan

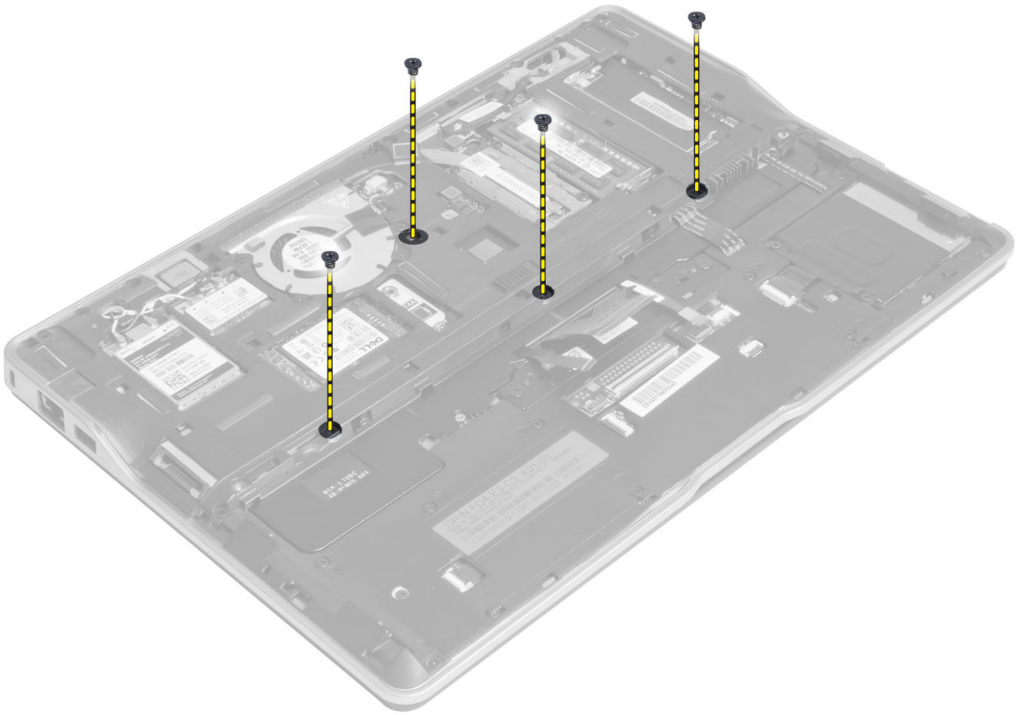
1. Place the system fan in its slot on the computer.
2. Tighten the screws that secure the system fan to the computer.
3. Connect the system fan cable.
4. Install:
   a) base cover
   b) SD card
   c) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Keyboard

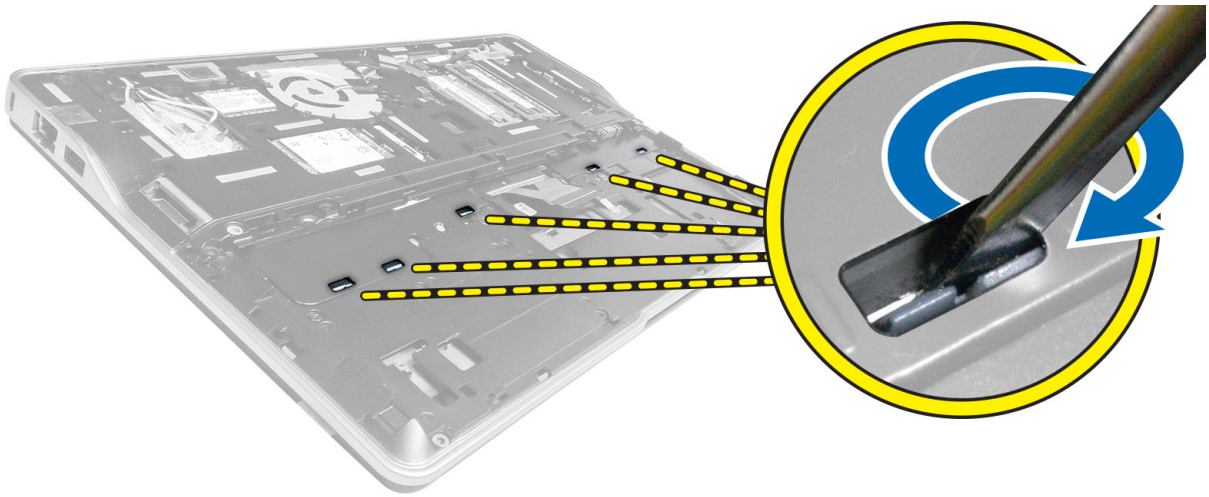
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
3. Disconnect the keyboard-backlight cable, trackstick cable, and keyboard cable.



4. Remove the screws that secure the keyboard to the computer.



5. Using a flat screwdriver, release the snaps.



6. Flip the computer and remove the keyboard from the computer.

Installing the Keyboard

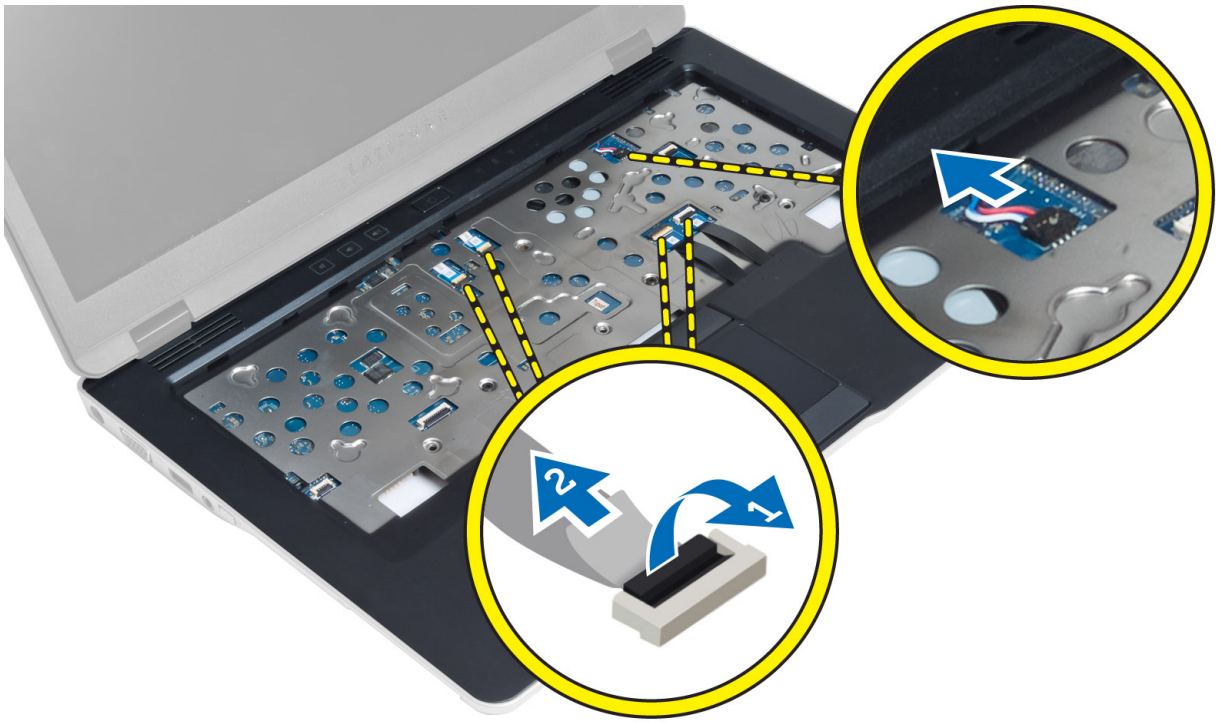
1. Slide the keyboard into its compartment and ensure that it clicks into place.
2. Flip the computer and tighten the screws to secure the keyboard.
3. Connect the keyboard cable, keyboard-backlight cable and trackstick cable.
4. Install:
   a) base cover
   b) SD card
   c) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Palmrest Assembly

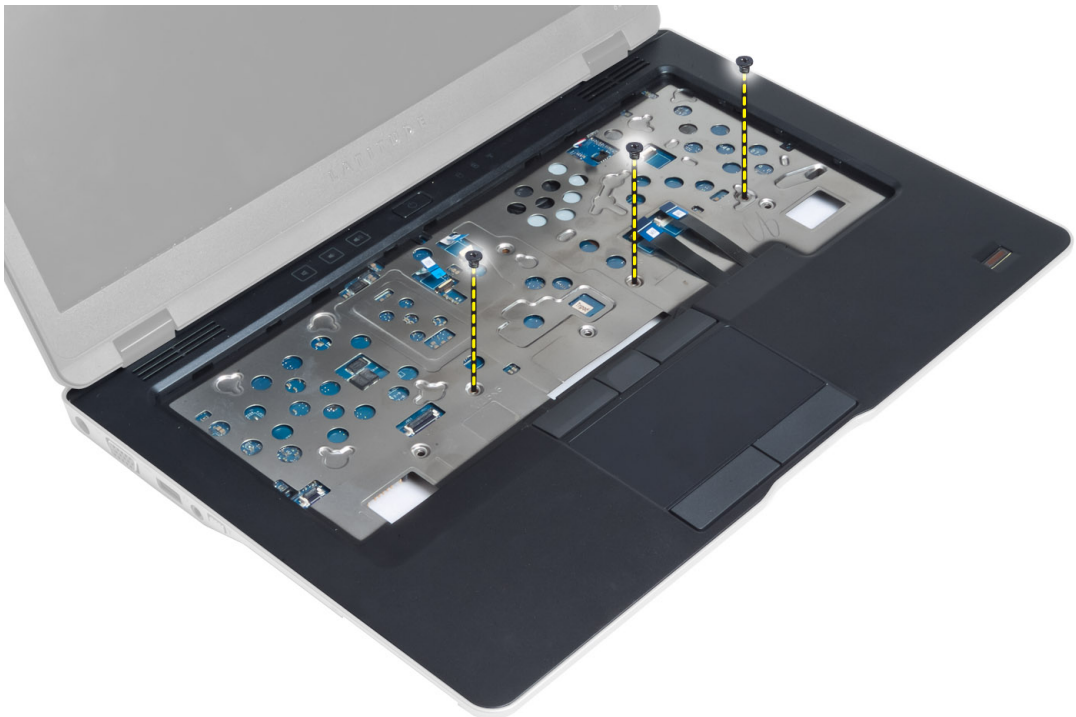
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover

d) keyboard

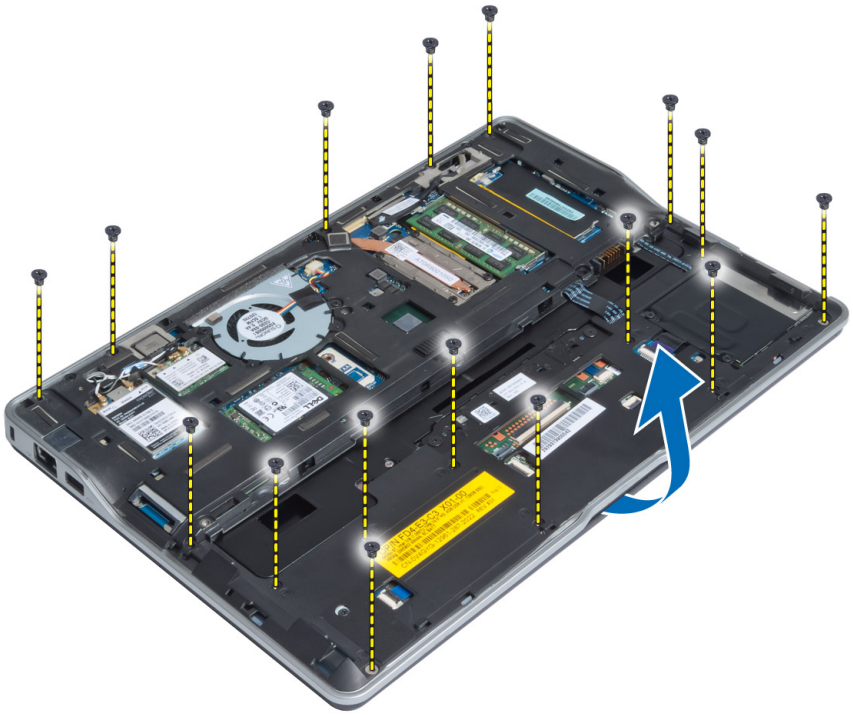
3. Disconnect the media-board cable, power-switch cable, touchpad cable, fingerprint-scanner cable and speaker cable.



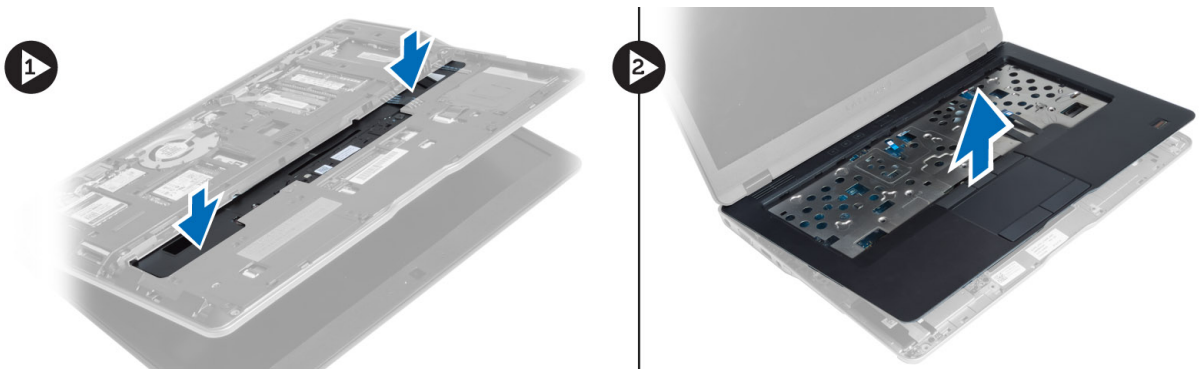
4. Remove the screws that secure the palmrest assembly to the computer.



5. Flip the computer and remove the screws that secure the palmrest assembly to the base of the computer and flip open the lower assembly.



6. Press against the sections to release the palmrest assembly and remove it from the computer.



Installing the Palmrest Assembly

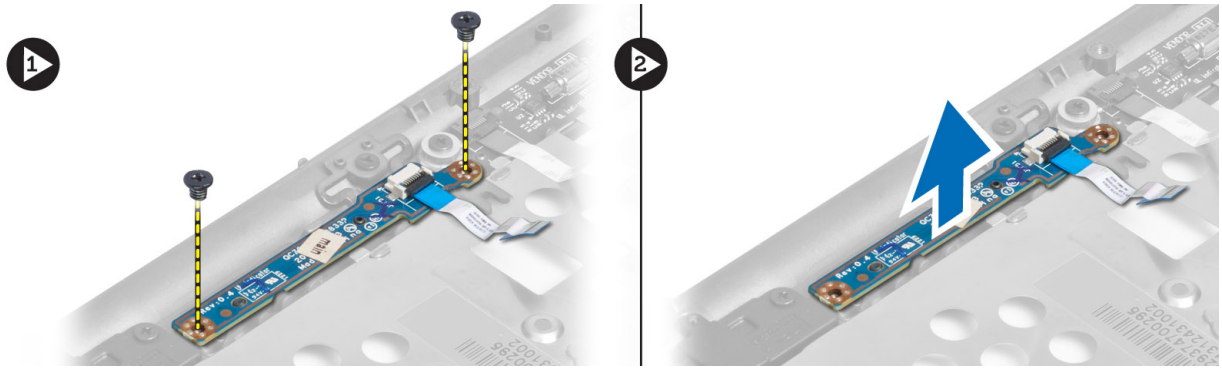
1. Align the palmrest assembly to its original position in the computer until it snaps into place.
2. Tighten the screws to secure the palmrest assembly to the computer..
3. Flip the computer and tighten the screws to secure the palmrest assembly to the computer.
4. Tighten the screws to secure the palmrest assembly to the base of the computer.
5. Connect the following cable:
   a) Speaker cable
   b) fingerprint-scanner cable
   c) touchpad cable

d) power-switch cable
e) media-board cable

6. Install:
   a) keyboard
   b) base cover
   c) SD card
   d) battery

Removing the Power-Switch Board

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest assembly
3. Remove the screws that secure the power-switch board to the computer and remove it from the computer.



Installing the Power-Switch Board

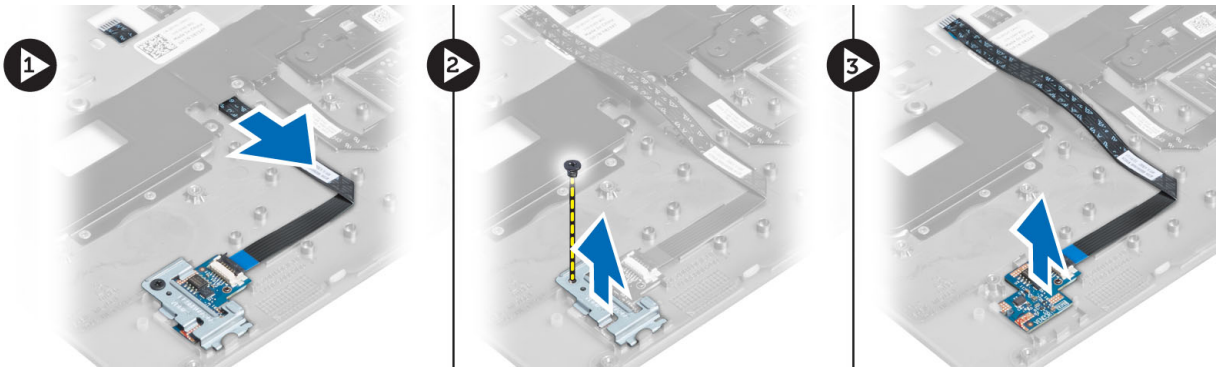
1. Place the power-switch board in its place on the computer.
2. Tighten the screws to secure the power-switch board to the computer.
3. Install:
   a) palmrest assembly
   b) keyboard
   c) base cover
   d) SD card
   e) battery

Removing the Fingerprint-Scanner Board

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card

c) base cover
d) keyboard
e) palmrest assembly

3. Un-route the fingerprint-scanner cable. Remove the screw that secures the fingerprint-scanner bracket to the computer and remove the fingerprint-scanner bracket. Remove the fingerpint-scanner board from the computer

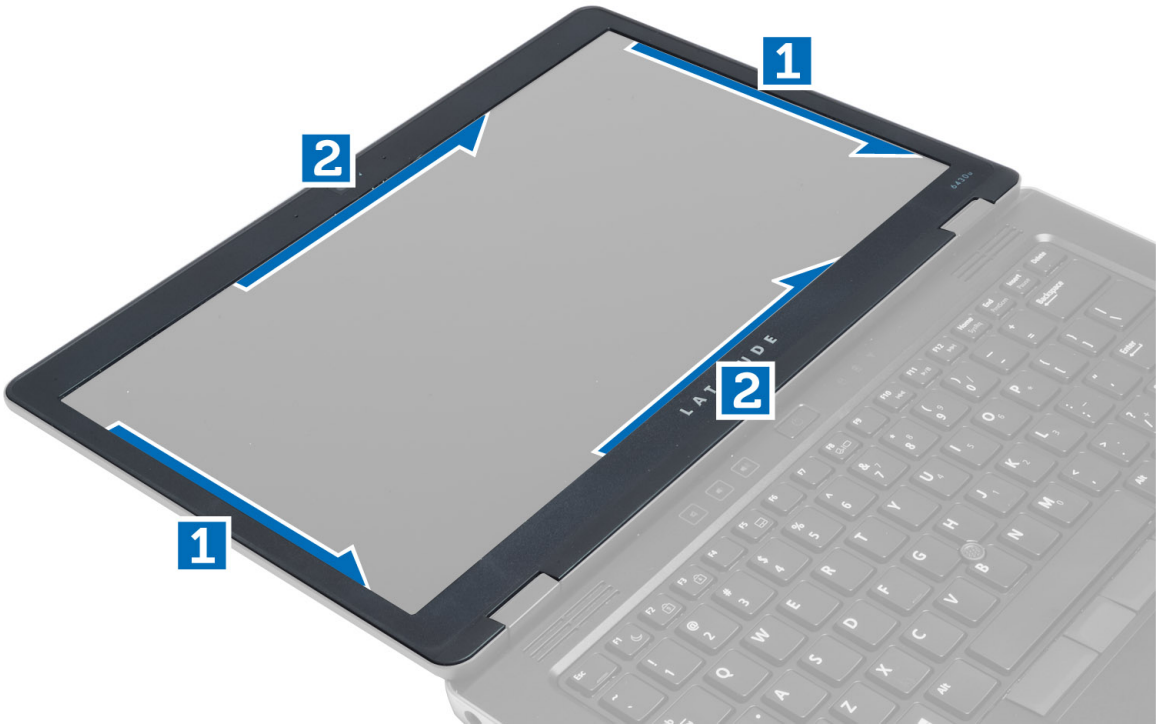


Installing the Fingerprint-Scanner Board

1. Place the fingerprint-scanner in its slot on the computer.
2. Place the fingerprint-scanner bracket on it and tighten the screw to secure the fingerprint-scanner bracket to the computer.
3. Route the fingerprint scanner cable.
4. Install:
   a) palmrest assembly
   b) keyboard
   c) base cover
   d) SD card
   e) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Display Bezel

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove the battery.
3. Pry the sides and work around the corners of the display bezel and remove it from the display assembly.

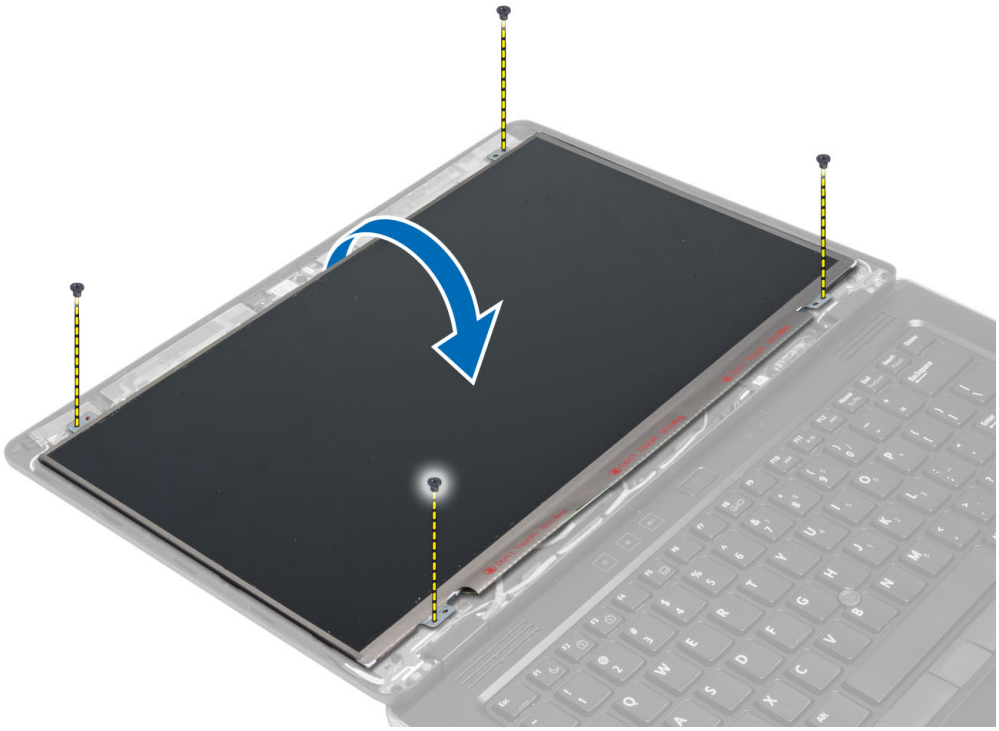


Installing the Display Bezel

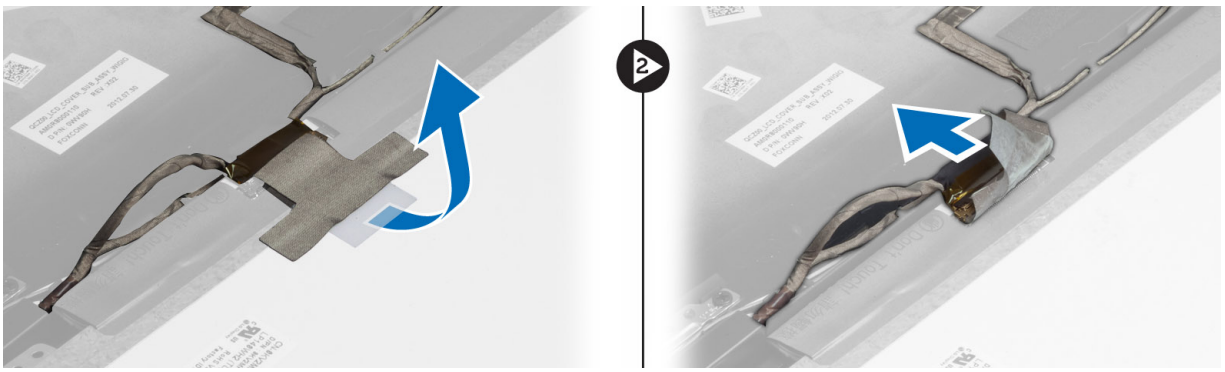
1. Place the display bezel on the display assembly.
2. Starting from the top corner, press on the display bezel and work around the entire bezel until it clicks onto the display assembly.
3. Install the battery.
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Display Panel

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) display bezel
3. Remove the screws that secure the display panel to the display assembly and flip the display panel over.



4. Peel off the LVDS cable connector tape and disconnect the LVDS cable from the display panel.



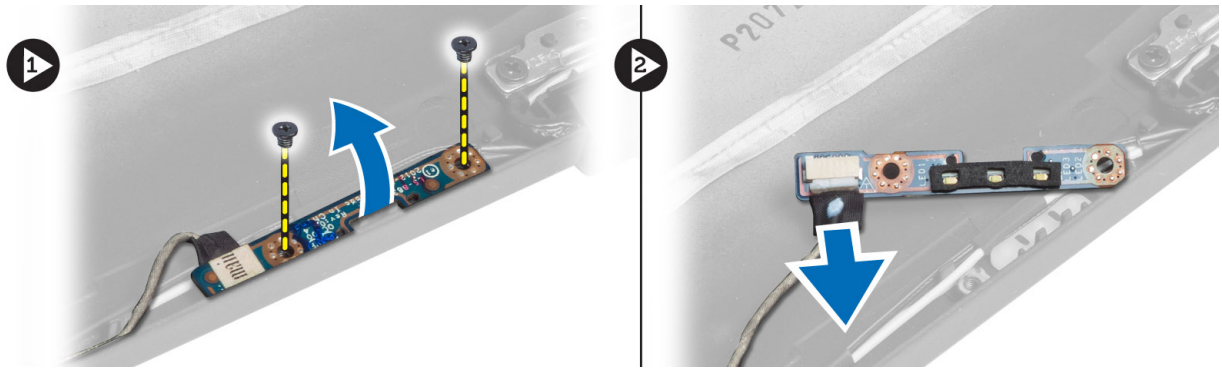
5. Remove the display panel from the display assembly.

Installing the Display Panel

1. Place the display panel on the display assembly.
2. Connect the LVDS cable and affix the LVDS cable connector tape to the display panel and flip the display panel over.
3. Tighten the screws to secure the display panel to the display assembly.
4. Install:
   a) display bezel
   b) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Power LED Board

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) display bezel
   c) display panel
3. Remove the screws that secure the power LED board to the computer and flip the power LED board over.
4. Disconnect the power LED cable from the power LED board.

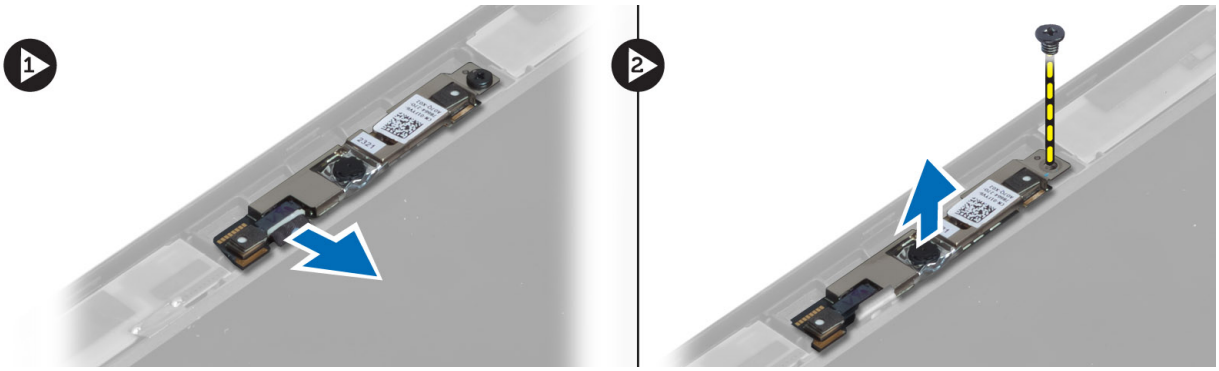


Installing the Power LED Board

1. Connect the power LED cable to the power LED board.
2. Place the power LED board in its place on the computer.
3. Tighten the screws to secure the power LED board to the computer.
4. Install:
   a) display panel
   b) display bezel
   c) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Camera

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) display bezel
3. Disconnect the LVDS and camera cable.
4. Remove the screw that secures the camera module in place and remove it.

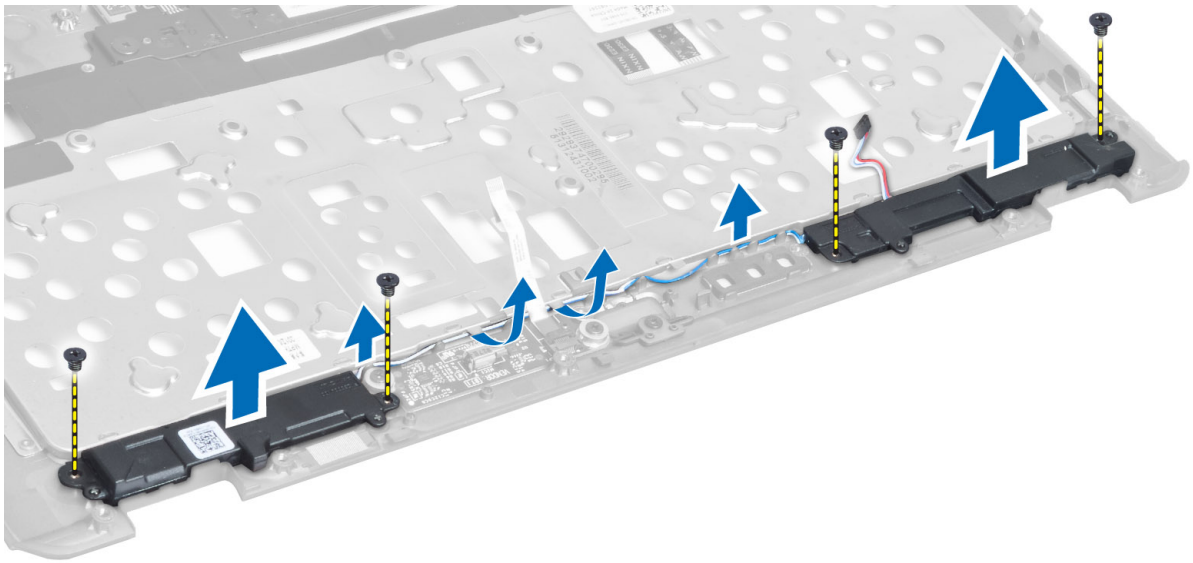


Installing the Camera

1. Connect the LVDS and camera cable.
2. Place the camera module in its slot in the computer.
3. Tighten the screw to secure the camera module.
4. Install:
   a) display bezel
   b) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Speakers

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest assembly
3. Remove the screws that secure the speakers to the computer and remove the speaker cable from their routing tabs and remove the speakers from the computer.

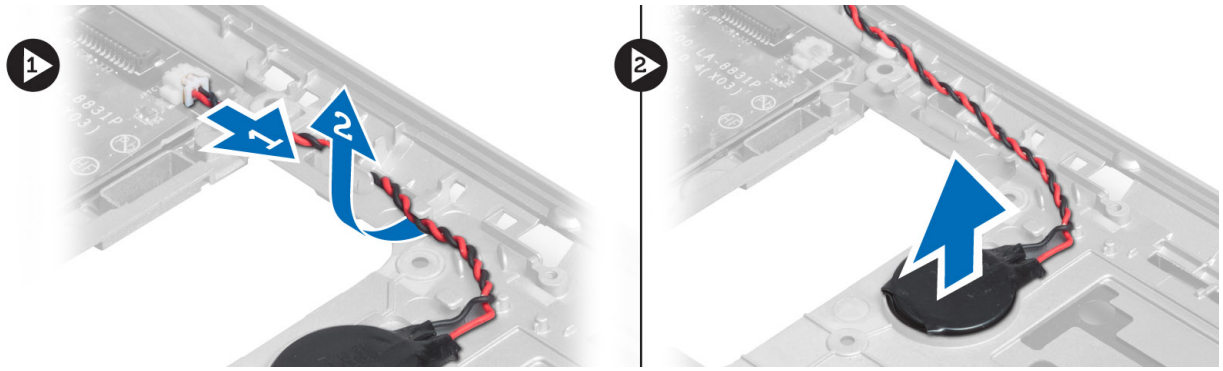


Installing the Speakers

1. Align the speakers in the original position in the computer.
2. Route the speaker cables through the routing channels.
3. Tighten the screws that secure the speakers to the computer.
4. Install:
   a) palmrest assembly
   b) keyboard
   c) base cover
   d) SD card
   e) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Coin-Cell Battery

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest assembly
3. Disconnect the coin-cell battery cable. Pry the coin-cell battery upward and remove it from the computer.

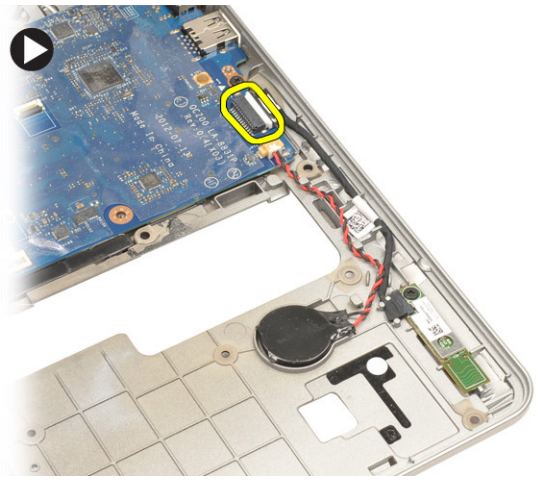
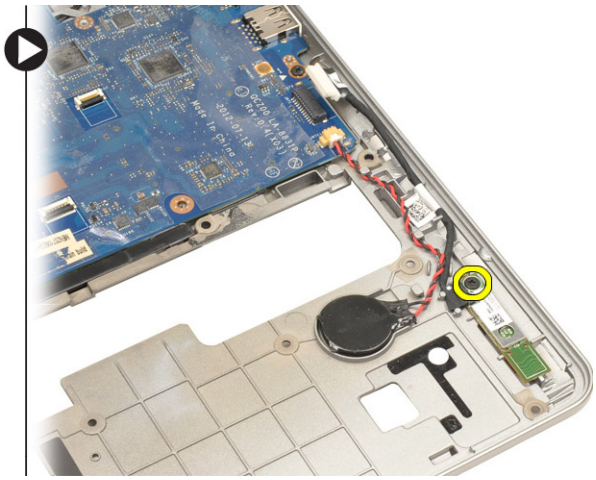


Installing the Coin-Cell Battery

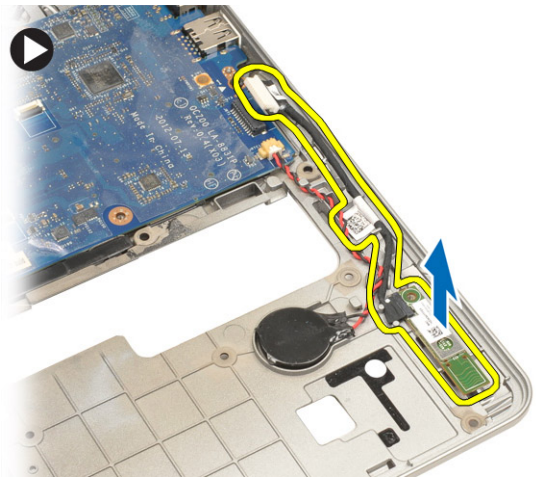
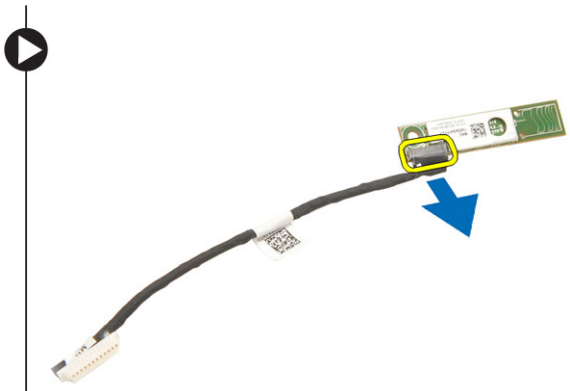
1. Place the coin-cell battery in its slot.
2. Connect the coin-cell battery cable.
3. Install:
   a) palmrest assembly
   b) keyboard
   c) base cover
   d) SD card
   e) battery
4. Follow the procedures in *After Working Inside Your Computer*.

Removing the Bluetooth Card

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest
3. Disconnect the bluetooth cable from the system board. Remove the screw that secures the bluetooth card to the computer.

4. Remove the bluetooth card. Disconnect the cable from the card.

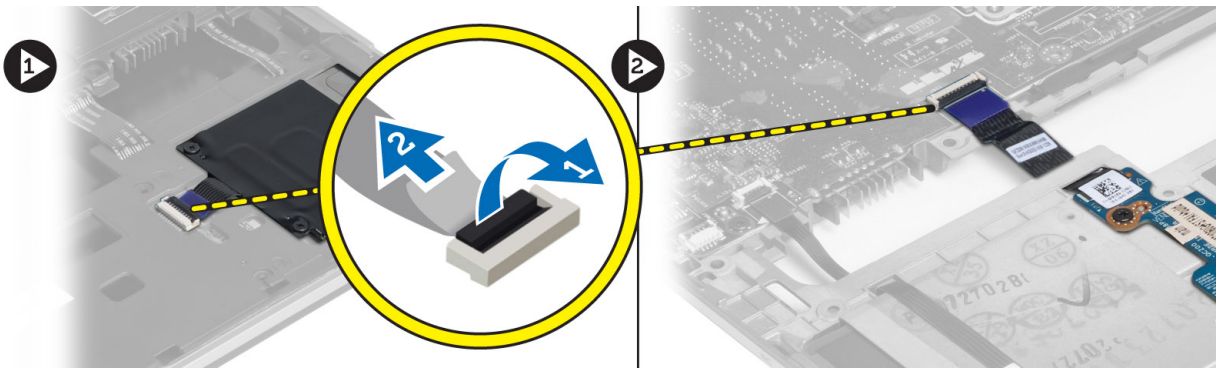



Installing the Bluetooth Card

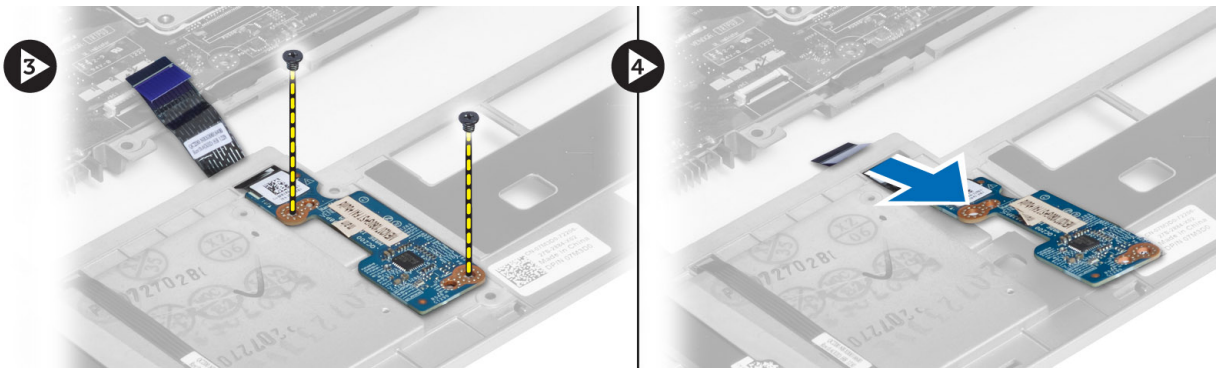
1. Replace the bluetooth card in its slot.
2. Connect the bluetooth cable to the bluetooth card.
3. Connect the bluetooth cable to system board.
4. Tighten the screw to secure the bluetooth card to the computer.
5. Install:
   a) palmrest
   b) keyboard
   c) base cover
   d) SD card
   e) battery
6. Follow the procedures in *After Working Inside Your Computer*.

Removing the Smart-Card Board

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest assembly
3. Disconnect the smart-card cables from the computer.



4. Remove the screws that secure the smart-card board in its place. Remove the smart-card cable from the routing channel and remove the smart-card from the computer.



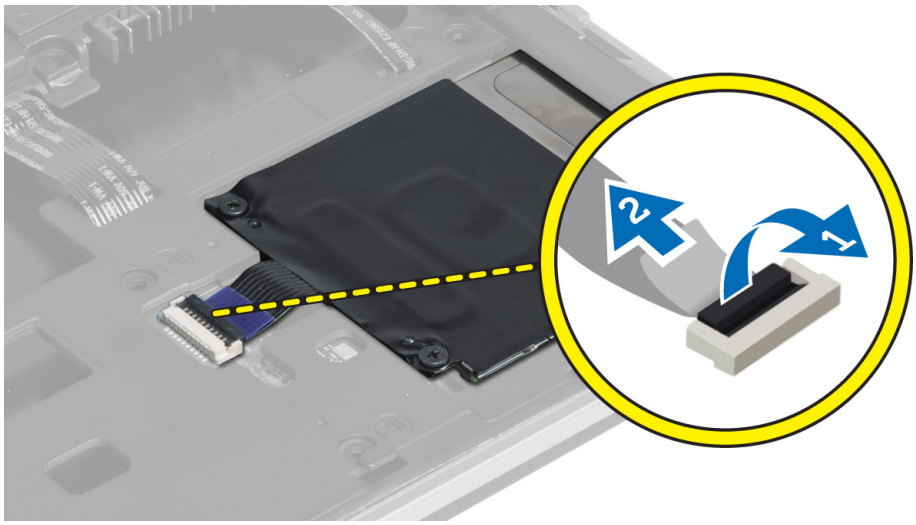
Installing the Smart-Card Board

1. Route the smart-card cable and place the smart-card board in its slot in the computer.
2. Tighten the screws to secure the smart-card board to the computer.
3. Connect the smart-card cables to the computer.
4. Install:
   a) palmrest assembly
   b) keyboard
   c) base cover
   d) SD card
   e) battery

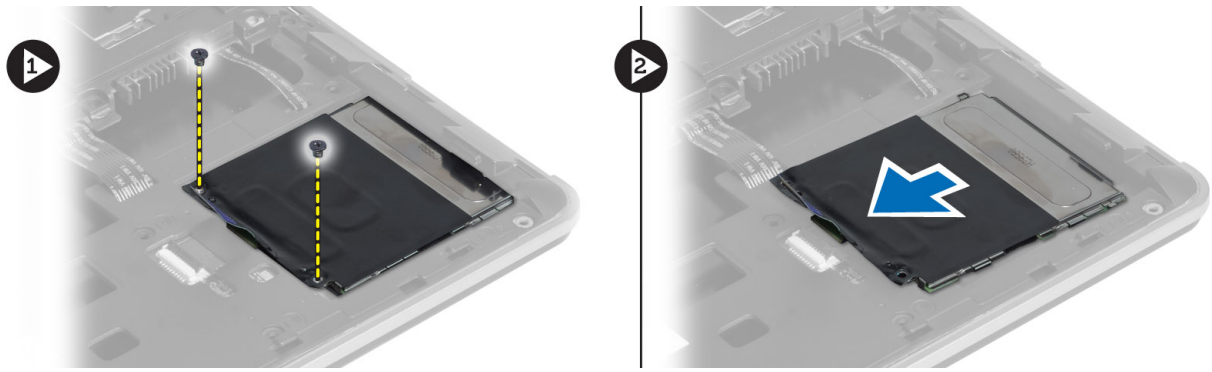
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Smart-Card Cage

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest assembly
3. Disconnect the smart-card cable.



4. Remove the screws that secure the smart-card cage to the computer and remove it.



Installing the Smart-Card Cage

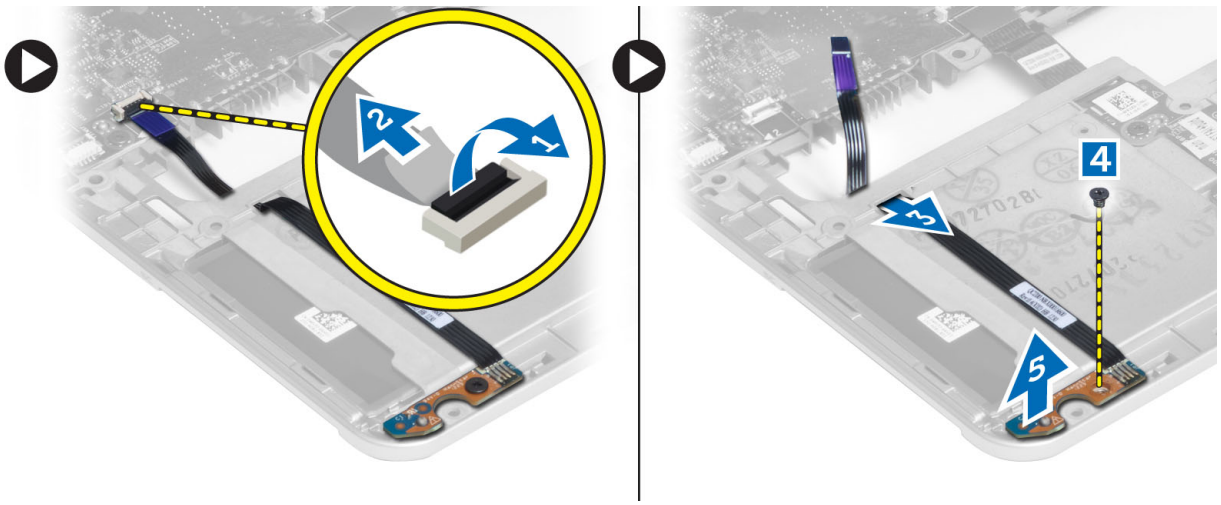
1. Place the smart-card cage in its slot on the computer.
2. Tighten the screws to secure the smart-card cage to the computer.
3. Connect the smart-card cable.
4. Install:

a) palmrest assembly
b) keyboard
c) base cover
d) SD card
e) battery

5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Hall Sensor

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest assembly
3. Disconnect the hall-sensor cable and remove it from the routing channel.
4. Remove the screw that secures the hall sensor to the computer and remove it.

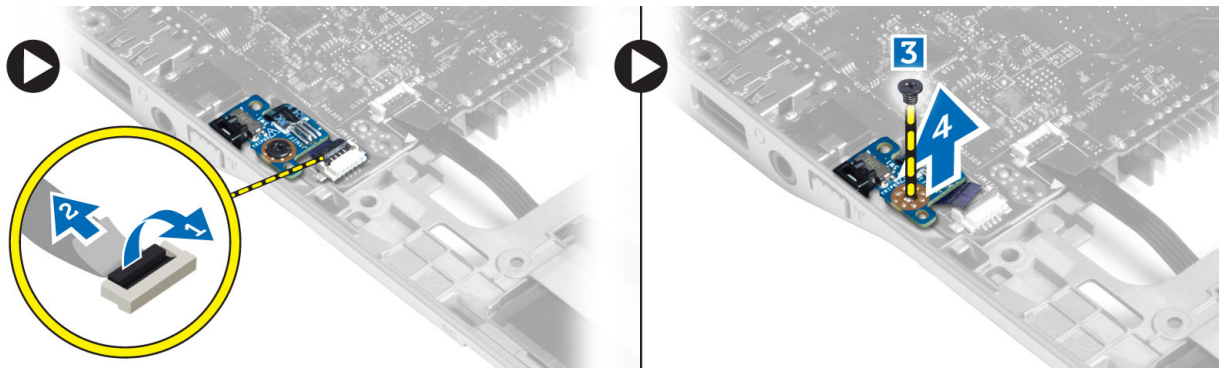


Installing the Hall Sensor

1. Place the hall sensor in its place on the computer.
2. Tighten the screw to secure the hall sensor to the computer.
3. Route and connect the hall-sensor cable.
4. Remove:
   a) palmrest assembly
   b) keyboard
   c) base cover
   d) SD card
   e) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Sniffer Board

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest assembly
3. Disconnect the sniffer-board cable and remove the screw that secures the sniffer board to the computer and remove it.

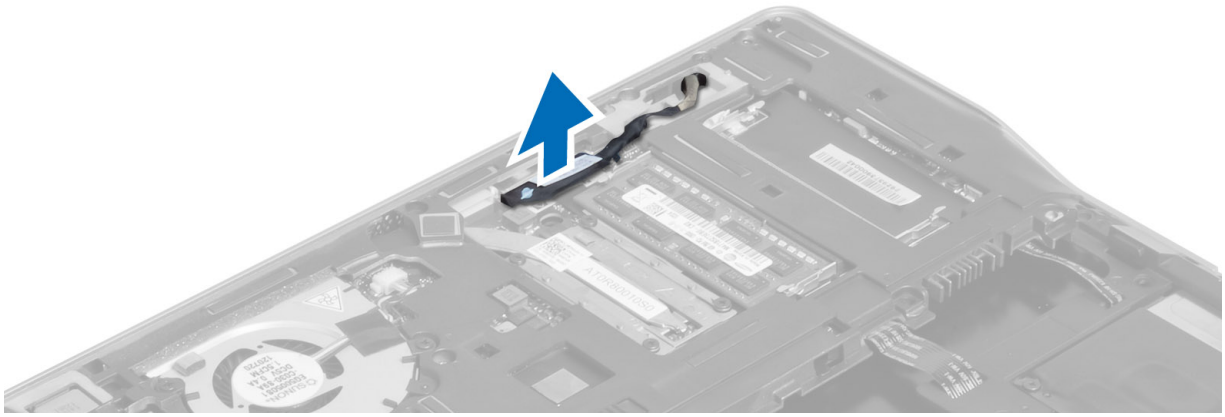


Installing the Sniffer Board

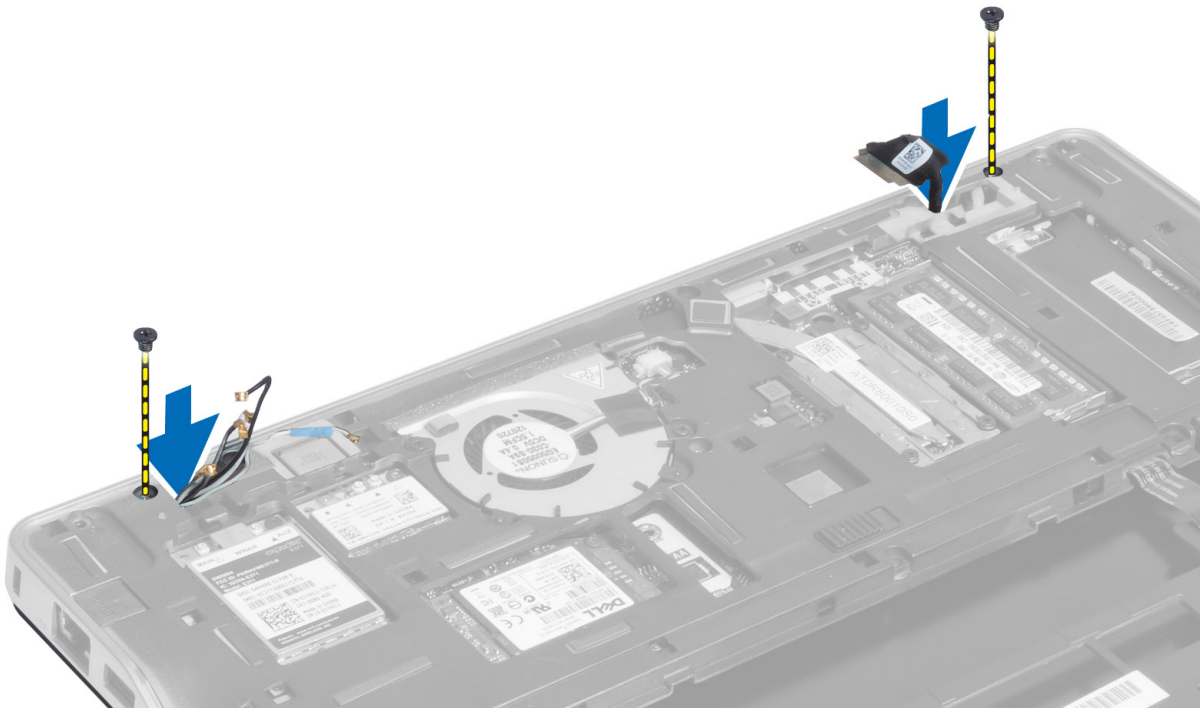
1. Place the sniffer board in its slot on the computer.
2. Tighten the screw that secures the sniffer board to the computer.
3. Connect the sniffer-board cable.
4. Remove:
   a) palmrest assembly
   b) keyboard
   c) base cover
   d) SD card
   e) battery
5. Follow the procedures in *After Working Inside Your Computer*.

Removing the Display Assembly

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest assembly
3. Disconnect the LVDS and camera cable from the system board.



4. Disconnect the antenna cables from the wireless solution.
5. Remove the screws that secure the display assembly to the base of the computer and slide the antenna cables through the holes on the back of the computer.



6. Remove the screws that secure the display assembly to the computer, and lift the display assembly from the computer.

Installing the Display Assembly

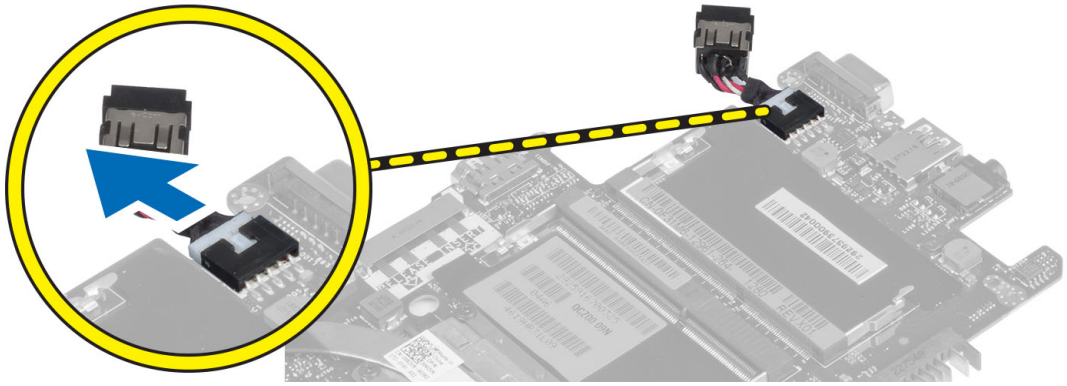
1. Insert the LVDS and wireless antenna cables through the holes on the base chassis and connect them.
2. Place the display assembly onto the computer.
3. Tighten the screws on both sides to secure the display assembly.
4. Route the antenna and the LVDS cables through the routing channel.
5. Connect the LVDS and camera cable to the computer.
6. Connect the antenna cables to the wireless solution.
7. Install:
   a) palmrest assembly
   b) keyboard
   c) base cover
   d) SD card
   e) battery
8. Follow the procedures in *After Working Inside Your Computer*.

Removing the Power Connector

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard

e) palmrest assembly
f) display assembly
g) system board

3. Disconnect the power-connector cable from the computer.

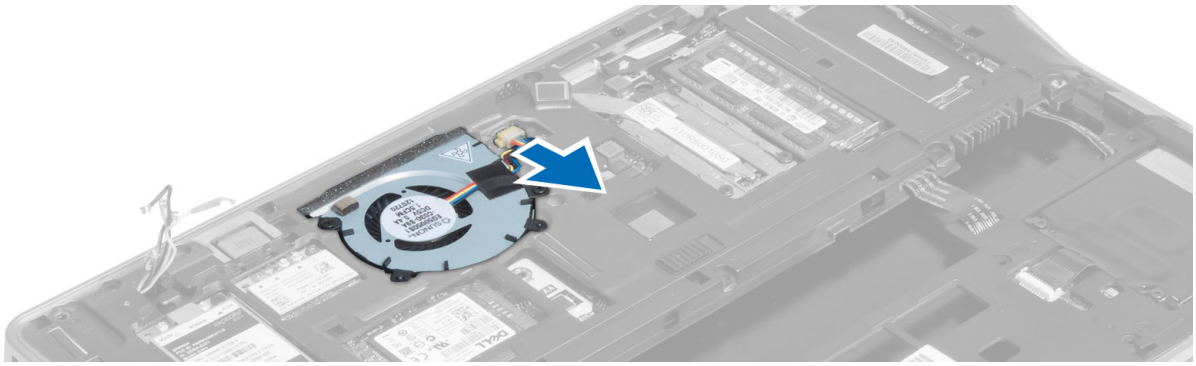


Installing the Power Connector

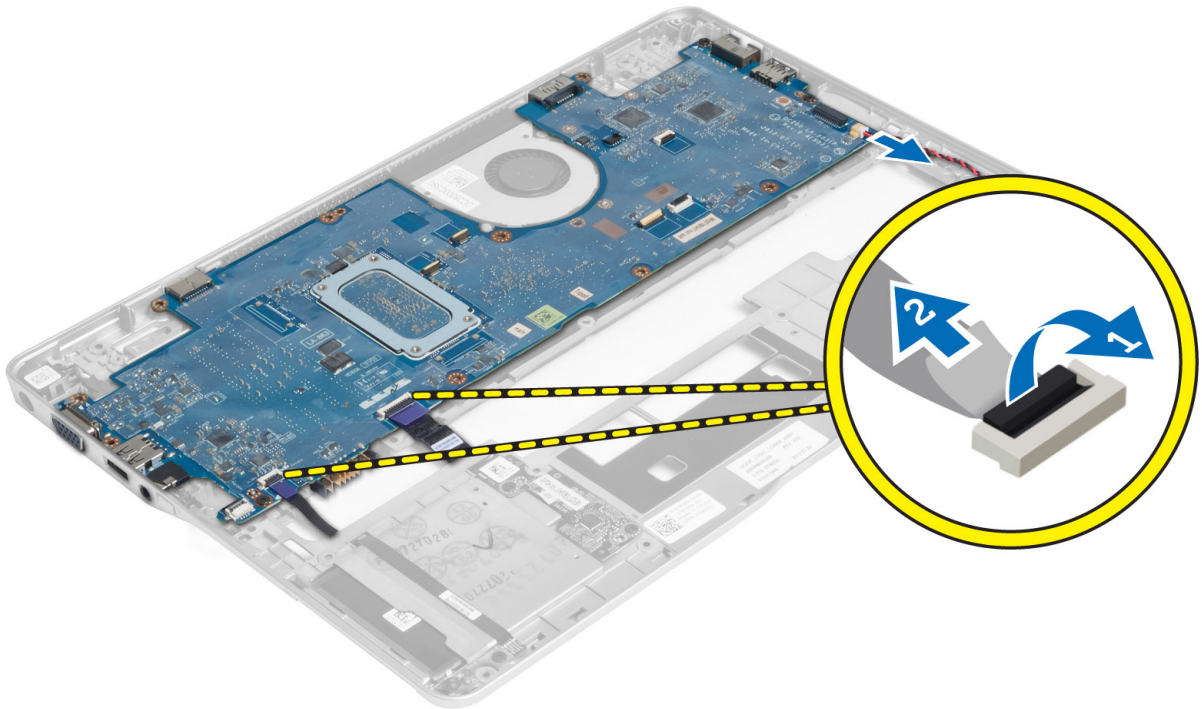
1. Connect the power-connector cable to the computer.
2. Install:
   a) system board
   b) display assembly
   c) palmrest assembly
   d) keyboard
   e) base cover
   f) SD card
   g) battery
3. Follow the procedures in *After Working Inside Your Computer*.

Removing the System Board

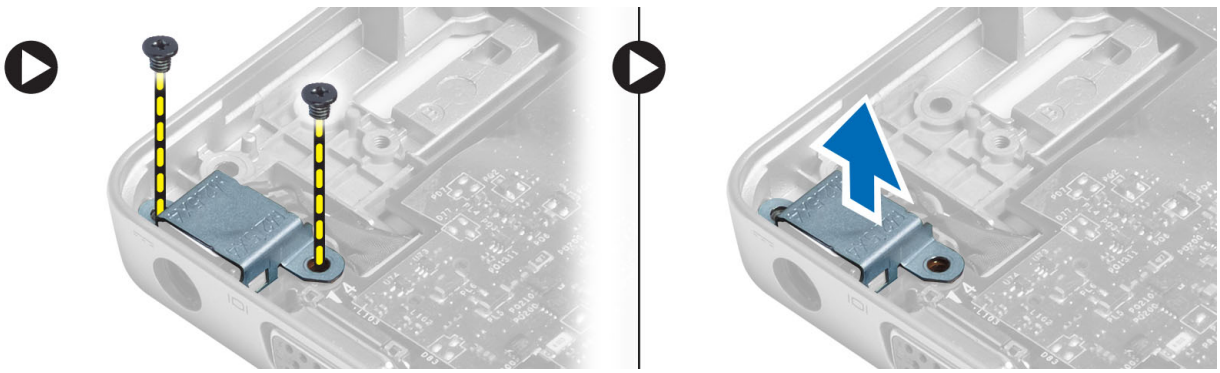
1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery
   b) SD card
   c) base cover
   d) keyboard
   e) palmrest assembly
   f) sniffer board
   g) display assembly
3. Disconnect the system-fan cable.



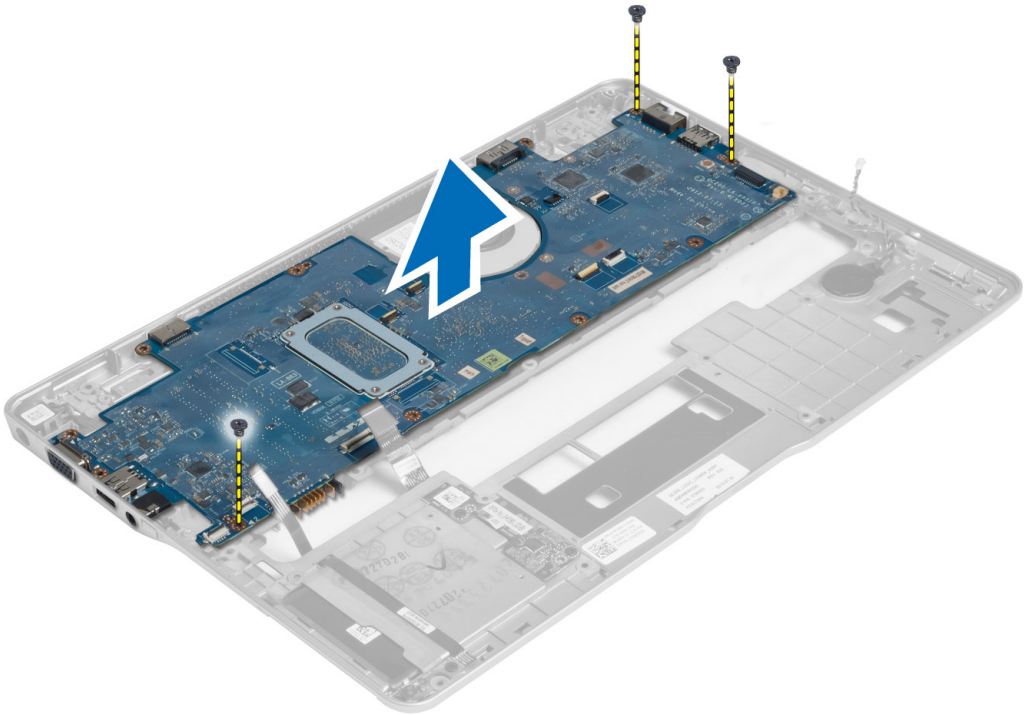
4. Disconnect the smart-card cable, hall-sensor cable and coin-cell battery cable.



5. Remove the screws that secure the power-connector bracket to the computer and remove the power-connector bracket from the computer.



6. Remove the screws that secure the system board to the computer and remove it.



Installing the System Board

1. Place the system board on the chassis.
2. Tighten the screws to secure the system board to the computer.
3. Place the power-connector bracket on the system board. Tighten the screws to secure the power-connector bracket to the computer.
4. Connect the following cables to the system board:
   a) coin-cell battery
   b) hall-sensor cable
   c) smart-card cable
5. Install:
   a) display assembly
   b) sniffer board
   c) palmrest assembly
   d) keyboard
   e) base cover
   f) SD card
   g) battery
6. Follow the procedures in *After Working Inside Your Computer*.

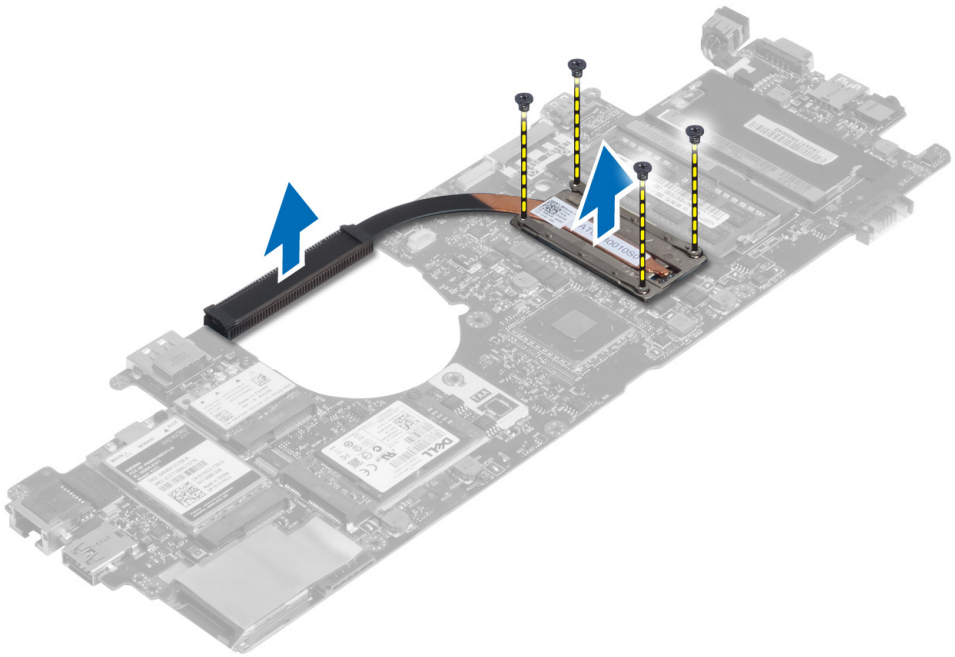
Removing the Thermal Module

1. Follow the procedures in *Before Working Inside Your Computer*.
2. Remove:
   a) battery

b) SD card
c) base cover
d) keyboard
e) palmrest
f) display assembly
g) power connector
h) system board

3.

4. Remove the screws that secure the thermal module to the system board and lift it from the system board.



Installing the Thermal Module

1. Place the thermal module on the system board.
2. Tighten the screws to secure the thermal module to the system board.
3. Install:
   a) system board
   b) power connector
   c) display assembly
   d) palmrest
   e) keyboard
   f) base cover
   g) SD card
   h) battery
4. Follow the procedures in *After Working Inside Your Computer*.

3

System Setup

System Setup Overview

System Setup allows you to:

- change the system configuration information after you add, change, or remove any hardware in your computer.
- set or change a user-selectable option such as the user password.
- read the current amount of memory or set the type of hard drive installed.
- check battery health.

Before you use System Setup, it is recommended that you write down the System Setup screen information for future reference.

CAUTION: Unless you are an expert computer user, do not change the settings for this program. Certain changes can cause your computer to work incorrectly.

Boot Sequence

Boot Sequence allows you to bypass the System Setup-defined boot device order and boot directly to a specific device (for example: optical drive or hard drive). During the Power-on Self Test (POST), when the Dell logo appears, you can:

- Access System Setup by pressing <F2> key
- Bring up the one-time boot menu by pressing <F12> key

The one-time boot menu displays the devices that you can boot from including the diagnostic option. The boot-menu options are:

- Removable Drive (if available)
- STXXXX Drive

  NOTE: XXX denotes the SATA drive number.
- Optical Drive
- Diagnostics

  NOTE: Choosing Diagnostics, will display the **ePSA diagnostics** screen.

The boot sequence screen also displays the option to access the System Setup screen.

Navigation Keys

The following table displays the system setup navigation keys.

NOTE: For most of the system setup options, changes that you make are recorded but do not take effect until you restart the system.

Table 1. Navigation Keys

Keys	Navigation
Up arrow	Moves to the previous field.
Down arrow	Moves to the next field.
<Enter>	Allows you to select a value in the selected field (if applicable) or follow the link in the field.
Spacebar	Expands or collapses a drop-down list, if applicable.
<Tab>	Moves to the next focus area. **NOTE:** For the standard graphics browser only.
<Esc>	Moves to the previous page till you view the main screen. Pressing <Esc> in the main screen displays a message that prompts you to save any unsaved changes and restarts the system.
<F1>	Displays the System Setup help file.

Updating the BIOS

It is recommended to update your BIOS (system setup), on replacing the system board or if an update is available. For notebooks, ensure that your computer battery is fully charged and connected to a power outlet

1. Restart the computer.
2. Go to **support.dell.com/support/downloads**.
3. If you have your computer's Service Tag or Express Service Code:

   NOTE: For desktops, the service tag label is available on the front of your computer.

   NOTE: For notebooks, the service tag label is available on the bottom of your computer.

   NOTE: For All-In-One Desktops, the service tag label is available at the back of your computer.

   a) Enter the **Service Tag** or **Express Service Code** and click **Submit**.
   b) Click **Submit** and proceed to step 5.
4. If you do not have your computer's service tag or express service code, select one of the following:
   a) **Automatically detect my Service Tag for me**
   b) **Choose from My Products and Services List**
   c) **Choose from a list of all Dell products**
5. On the application and drivers screen, under the **Operating System** drop-down list, select **BIOS**.
6. Identify the latest BIOS file and click **Download File**.
7. Select your preferred download method in the **Please select your download method below window**; click **Download Now**.

   The **File Download** window appears.
8. Click **Save** to save the file on your computer.
9. Click **Run** to install the updated BIOS settings on your computer.

   Follow the instructions on the screen.

System Setup Option

General

Table 2. General

Option	Description
System Information	This section lists the primary hardware features of your computer. • System Information: Displays BIOS Version, Service Tag, Asset Tag, Ownership Tag, Ownership Date, Manufacture Date, and the Express Service Code. • Memory Information: Displays Memory Installed, Memory Available, Memory Speed, Memory Channels Mode, Memory Technology, DIMM ASize, DIMM B Size, • Processor Information: Displays Processor Type, Core Count, Processor ID, Current Clock Speed, Minimum Clock Speed, Maximum Clock Speed, Processor L2 Cache, Processor L3 Cache, HT Capable, and 64-Bit Technology. • Device Information: Displays Primary Hard Drive, Fixed bay Device, System eSATA Device, Dock eSATA Device, LOM MAC Address, Video Controller, Video BIOS Version, Video Memory, Panel Type, Native Resolution, Audio Controller, Modem Controller, Wi-Fi Device, WiGig Device, Cellular Device, Bluetooth Device.
Battery Information	Displays the battery status and the type of AC adapter connected to the computer
Boot Sequence	Allows you to change the order in which the computer attempts to find an operating system. • Diskette Drive • Internal HDD • USB Storage Device • CD/DVD/CD-RW Drive • Onboard NIC
Boot List Option	Allow you to change Boot List Option based on your boot device configurations Legacy: If your boot devices do not support UEFI boot. E.g. Windows 7 UEFI: if your boot devices support UEFI boot. E.g. Windows 8
Advanced Boot Options	Allows you to change the Enable Legacy Option ROMs setting. • Enable Legacy Option ROMs
Date/Time	Allows you to change the date and time.

System Configuration

Table 3. System Configuration

Option	Description
Integrated NIC	Allows you to configure the integrated network controller. The options are: • Disabled • Enabled • Enabled w/PXE: This option is enabled by default.

Option	Description
	• Enable UEFI Network Stack: This allows you to enable UEFI Networking Protocols in pre-OS and early OS networking environment.
SATA Operation	Allows you to configure the internal SATA hard-drive controller. The options are: • Disabled • ATA • AHCI • RAID On: This option is enabled by default.
Drives	Allows you to configure the SATA drives on board. All drives are enabled by default. The options are: • SATA-0 • SATA-4
SMART Reporting	This field controls whether hard drive errors for integrated drives are reported during system startup. This technology is part of the SMART (Self Monitoring Analysis and Reporting Technology) specification. This option is disabled by default. • Enable SMART Reporting
USB Configuration	This field configures the integrated USB controller. If Boot Support is enabled, the system is allowed to boot any type of USB Mass Storage Devices (HDD, memory key, floppy). If USB port is enabled, device attached to this port is enabled and available for OS. If USB port is disabled, the OS cannot see any device attached to this port. • Enable Boot Support • Enable External USB Port **NOTE:** USB keyboard and mouse always work in the BIOS setup irrespective of these settings.
USB PowerShare	This option configures the USB PowerShare feature behavior. This feature is intended to allow users to charge external devices, such as phones and portable music players, using the stored system battery power through the USB PowerShare port, even when the system is turned off. This option is disabled by default: • Enable USB PowerShare
Keyboard Illumination	This field lets you choose the operating mode of the keyboard illumination feature. The keyboard brightness level can be set from 25% to 100% • Disabled: This option is enabled by default. • Level is 25% • Level is 50% • Level is 75% • Level is 100%

Option	Description
Unobtrusive Mode	This feature, when enabled, pressing Fn+B allows you to turn on/off all light and sound emissions including system fan and wireless radios in the system. This option is disabled by default. • Enable Unobtrusive Mode
Miscellaneous Devices	Allows you to enable or disable the following devices: • Enable Microphone • Enable Camera • Enable eSATA Ports • Enable Media Card • Disable Media Card **NOTE:** All devices are enabled by default. You can also enable or disable Media Card.

Video

Table 4. Video

Option	Description
LCD Brightness	Allows you to set the display brightness depending up on the power source (On Battery and On AC).

NOTE: The Video setting will only be visible when a video card is installed into the system.

Dynamic Backlight Control	Allows you to enable/disable Dynamic backlight control.

Security

Table 5. Security

Option	Description
Admin Password	Allows you to set, change, or delete the administrator (admin) password. **NOTE:** You must set the admin password before you set the system or hard drive password. Deleting the admin password automatically deletes the system password and the hard drive password. **NOTE:** Successful password changes take effect immediately. Default Setting: Not set
System Password	Allows you to set, change or delete the system password. **NOTE:** Successful password changes take effect immediately. Default Setting: Not set
Internal HDD-0 Password	Allows you to set or change the system's internal hard-disk drive. **NOTE:** Successful password changes take effect immediately. Default Setting: Not set
Strong Password	Allows you to enforce the option to always set strong passwords. Default Setting: Enable Strong Password is not selected.

Option	Description
	NOTE: If Strong Password is enabled, Admin and System passwords must contain at least one uppercase character, one lowercase character and be at least 8 characters long.
Password Configuration	Allows you to determine the minimum and maximum length of Administrator and System passwords.
Password Bypass	Allows you to enable or disable the permission to bypass the System and the Internal HDD password, when they are set. The options are: • Disabled • Reboot bypass Default Setting: Disabled
Password Change	Allows you to enable the disable permission to the System and Hard Drive passwords when the admin password is set. Default Setting: Allow Non-Admin Password Changes is selected
Non-Admin Setup Changes	Allows you to determine whether changes to the setup options are allowed when an Administrator Password is set. If disabled the setup options are locked by the admin password.
TPM Security	Allows you to enable the Trusted Platform Module (TPM) during POST. Default Setting: The option is disabled.
Computrace	Allows you to activate or disable the optional Computrace software The options are: • Deactivate • Disable • Activate **NOTE:** The Activate and Disable options will permanently activate or disable the feature and no further changes will be allowed Default Setting: Deactivate
CPU XD Support	Allows you to enable the Execute Disable mode of the processor. Default Setting: Enable CPU XD Support
OROM Keyboard Access	Allows you to set an option to enter the Option ROM Configuration screens using hotkeys during boot. The options are: • Enable • One Time Enable • Disable Default Setting: Enable
Admin Setup Lockout	Allows you to prevent users from entering Setup when an Administrator password is set. Default Setting: Enable Admin Setup Lockout is not selected.

Secure Boot

Table 6. Secure Boot

Option	Description
Secure Boot Enable	Allows you to enable or disable the Secure Boot Feature. For Secure Boot to the enables, the system needs to be in UEFI boot mode and the Enable Legacy Option ROMs Option needs to be turned off. The option is disabled by default.
Expert Key Management	Allows you to enable the Expert Key Management to manipulate the databases. The option is: • Enable Custom Mode: The option is disabled by default. The Custom Mode Key Management options are: • PK • KEK • db • dbx

Performance

Table 7. Performance

Option	Description
Multi Core Support	This field specifies whether the process will have one or all cores enabled. The performance of some applications will improve with the additional cores. This option is enabled by default.Allows you to enable or disable multi-core support for the processor. The options are: • All • 1 • 2 Default Setting: All
Intel® SpeedStep	Allows you to enable or disable the Intel SpeedStep feature. Default Setting: Enable Intel SpeedStep
C States Control	Allows you to enable or disable the additional processor sleep states. Default Setting: The option C statesis enabled.
Intel® TurboBoost	Allows you to enable or disable the Intel TurboBoost mode of the processor. Default Setting: Enable Intel TurboBoost
Hyper-Thread Control	Allows you to enable or disable the HyperThreading in the processor. Default Setting: Enabled
Rapid Start Technology	The Intel Rapid Start feature might improve the battery life by automatically putting the system into a low power state during sleep after a user specified time. The options are enabled by defalut: • Intel Rapid Start Feature • Transition to Rapid Start when using Timer The Rapid Start Timer value can be configure to put the system into Rapid State as per requirement.

Power Management

Table 8. Power Management

Option	Description
AC Behavior	Allows you to enable or disable the computer from turning on automatically when an AC adapter is connected. Default Setting: Wake on AC is not selected.
Auto On Time	Allows you to set the time at which the computer must turn on automatically. The options are: • Disabled • Every Day • Weekdays • Select Days Default Setting: Disabled
USB Wake Support	Allows you to enable USB devices to wake the system from Standby. **NOTE:** This feature is only functional when the AC power adapter is connected. If the AC power adapter is removed during Standby, the system setup will remove power from all of the USB ports to conserve battery power. • Enable USB Wake Support • Default Setting: Enable USB Wake Support is not selected
Wireless Radio Control	Allows you to enable or disable the feature that automatically switches from wired or wireless networks without depending on the physical connection. • Control WLAN Radio • Control WWAN Radio • Default Setting: Control WLAN radio or Control WWAN radio is not selected
Wake on LAN/WLAN	Allows you to enable or disable the feature that powers on the computer from the Off state when triggered by a LAN signal. • Disabled: This option is enabled by default • LAN Only • WLAN Only • LAN or WLAN
Block Sleep	This option lets you block entering to sleep (S3 state) in Operating System environment. Block Sleep (S3 state) - This option is disabled by default.
Primary Battery Charge Configuration	Allows you to select the charging mode for the battery. The options are: • Adaptive: This option is enabled by default. • Standard • Express Charge • Primarily AC use • Custom If Custom Charge is selected, you can also configure Custom Charge Start and Custom Charge Stop.

Option	Description
	NOTE: All charging mode may not be available for all the batteries.
Intel Smart Connect Technology	Allows you to periodically sense nearby wireless connections while the system is asleep. Smart Connect will synchronize email or social media applications that were open when the system entered the sleep state. The option is disabled by default.

POST Behavior

Table 9. POST Behavior

Option	Description
Adapter Warnings	Allows you to enable or disable the system setup (BIOS) warning messages when you use certain power adapters. Default Setting: Enable Adapter Warnings
Keypad (Embedded)	Allows you to choose one of two methods to enable the keypad that is embedded in the internal keyboard. • Fn Key Only: This option is enabled by default. • By Numlock
Numlock Enable	Allows you to enable the Numlock option when the computer boots. Default Setting: Enable Network
Fn Key Emulation	Allows you to set the option where the <Scroll Lock> key is used to simulate the <Fn> key feature. Default Setting: Enable Fn Key Emulation
Fast Boot	Allows you to speed the boot process by bypassing some compatibility steps. • Minimal • Thorough: This option is enabled by default. • Auto

Virtualization Support

Table 10. Virtualization Support

Option	Description
Virtualization	Allows you to enable or disable the Intel Virtualization Technology. Default Setting: Enable Intel Virtualization Technology
VT for Direct I/O	Enables or disables the Virtual Machine Monitor (VMM) from utilizing the additional hardware capabilities provided by Intel® Virtualization technology for direct I/O. Enable VT for Direct I/O — This option is enabled by default.
Trusted Execution	This option specifies whether a Measured Virtual Machine Monitor (MVMM) can utilize the additional hardware capabilities provided by Intel Trusted Execution Technology. The TPM virtualization Technology, and Virtualization technology for direct I/O must be enabled to use this feature. Trusted Execution — disabled by default.

Wireless

Table 11. Wireless

Option	Description
Wireless Switch	Allows to set the wireless devices that can be controlled by the wireless switch. The options are: • WWAN • WLAN • WiGig • Bluetooth All the options are enabled by default.
Wireless Device Enable	Allows you to enable or disable the internal wireless devices. • WWAN • WLAN/WiGig • Bluetooth All the options are enabled by default.

Maintenance

Table 12. Maintenance

Option	Description
Service Tag	Displays the Service Tag of your computer.
Asset Tag	Allows you to create a system asset tag if an asset tag is not already set. This option is not set by default.

System Logs

Table 13. System Logs

Option	Description
BIOS Events	Allows you to view and clear the System Setup (BIOS) POST events.
Thermal Events	Allows you to view and clear the Thermal events.
Power Events	Allows you to view and clear the Power events.

4

Troubleshooting

Enhanced Pre-Boot System Assessment (ePSA) Diagnostics

The ePSA diagnostics (also known as system diagnostics) performs a complete check of your hardware. The ePSA is embedded with the BIOS and is launched by the BIOS internally. The embedded system diagnostics provides a set of options for particular devices or device groups allowing you to:

- Run tests automatically or in an interactive mode
- Repeat tests
- Display or save test results
- Run thorough tests to introduce additional test options to provide extra information about the failed device(s)
- View status messages that inform you if tests are completed successfully
- View error messages that inform you of problems encountered during testing

CAUTION: Use the system diagnostics to test only your computer. Using this program with other computers may cause invalid results or error messages.

NOTE: Some tests for specific devices require user interaction. Always ensure that you are present at the computer terminal when the diagnostic tests are performed.

1. Power-on the computer.
2. As the computer boots, press the <F12> key as the Dell logo appears.
3. On the boot menu screen, select the **Diagnostics** option.
   The **Enhanced Pre-boot System Assessment** window is displayed, listing all devices detected in the computer. The diagnostics starts running the tests on all the detected devices.
4. If you wish to run a diagnostic test on a specific device, press <Esc> and click **Yes** to stop the diagnostic test.
5. Select the device from the left pane and click **Run Tests**.
6. If there are any issues, error codes are displayed.
   Note the error code and contact Dell.

Diagnostics

Table 14. Device Status Lights

	Turns on when you turn on the computer and blinks when the computer is in a power management mode.
	Turns on when the computer reads or writes data.
	Turns on steadily or blinks to indicate battery charge status.

	Turns on when wireless networking is enabled.

If the computer is connected to an electrical outlet, the battery light operates as follows:

Table 15. Battery Status Lights

Alternately blinking amber light and blue light	An unauthenticated or unsupported non-Dell AC adapter is attached to your laptop.
Alternately blinking amber light with steady blue light	Temporary battery failure with AC adapter present.
Constantly blinking amber light	Fatal battery failure with AC adapter present.
Light off	Battery in full charge mode with AC adapter present.
Solid white light on	Battery in charge mode with AC adapter present.

The lights located above the keyboard indicate the following:

Table 16. Keyboard Status Lights

	Turns on when the numeric keypad is enabled.
	Turns on when the Caps Lock function is enabled.
	Turns on when the Scroll Lock function is enabled.

Beep Codes

The computer may emit a series of beeps during start-up if the display cannot show errors or problems. These series of beeps, called beep codes, identify various problems. The delay between each beep is 300 ms, the delay between each set of beeps is 3 seconds, and the beep sound lasts 300 ms. After each beep and each set of beeps, the BIOS should detect if the user presses the power button. If so, BIOS will jump out from looping and execute the normal shutdown process and power system.

Code	Cause and Troubleshooting Steps
1	BIOS ROM checksum in progress or failure System board failure, covers BIOS corruption or ROM error
2	No RAM detected No memory detected
3	Chipset Error (North and South Bridge Chipset, DMA/IMR/ Timer Error) , Time-Of-Day Clock test failure , Gate A20 failure , Super I/O chip failure , Keyboard controller test failure System board failure
4	RAM Read/Write failure

Code	Cause and Troubleshooting Steps
	Memory failure
5	Real-time clock power fail CMOS battery failure
6	Video BIOS test failure Video card failure
7	CPU - cache test failure Processor failure
8	Display Display failure

LED Error Codes

Diagnostic LED codes are communicated via the Power Button LED. The Power Button LED blinks the corresponding LED codes for the corresponding fault condition. Example: For No Memory detected (LED code 2) , The Power Button LED blinks two times followed by a pause, blinks two times, pause, etc. This pattern continues until the system is powered off.

Code	Cause and Troubleshooting Steps
1	System board: BIOS ROM failure System board failure, covers BIOS corruption or ROM error
2	Memory No memory/RAM detected
3	Chipset Error (North and South Bridge Chipset, DMA/IMR/ Timer Error) , Time-Of-Day Clock test failure , Gate A20 failure , Super I/O chip failure , Keyboard controller test failure System board failure
4	RAM Read/Write failure Memory failure
5	Real-time clock power fail CMOS battery failure
6	Video BIOS test failure Video card failure
7	CPU - cache test failure Processor failure
8	Display Display failure

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Specifications

NOTE: Offerings may vary by region. The following specifications are only those required by law to ship with your computer. For more information regarding the configuration of your computer, click **Start → Help and Support** and select the option to view information about your computer.

Table 17. System Information

Feature	Specification
Chipset	Mobile Intel 7 series chipset (Intel QM77)
DRAM bus width	64 bits
Flash EPROM	SPI 32 MB, 64 MB
PCIe Gen1 bus	100 Mhz
External Bus Frequency	DMI (5GT/s)

Table 18. Processor

Feature	Specification
Types	• Intel Core i3 series ULV • Intel Core i5 series ULV • Intel Core i7 series ULV
L3 cache	up to 4 MB

Table 19. Memory

Feature	Specification
Memory connector	two SODIMM slots
Memory capacity	1 GB, 2 GB or 4 GB
Memory type	DDR3 SDRAM (1600 Mhz)
Minimum memory	2 GB
Maximum memory	16 GB

Table 20. Audio

Feature	Specification
Type	four-channel high definition audio
Controller	IDT92HD93
Stereo conversion	24-bit (analog-to-digital and digital-to-analog)

Feature	Specification
Interface:	
Internal	high definition audio
External	microphone-in/stereo headphones/external speakers connector
Speakers	two
Internal speaker amplifier	1 W (RMS) per channel
Volume controls	Media button, program menus

Table 21. Video

Feature	Specification
Type	integrated on system board
Controller	Intel HD Graphics

Table 22. Communications

Features	Specification
Network adapter	10/100/1000 Mb/s Ethernet (RJ-45)
Wireless	• internal WLAN/WiGig • WWAN

Table 23. Ports and Connectors

Features	Specification
Audio	one microphone/stereo headphone/speakers connector
Video	• one 15-pin VGA connector • 19-pin HDMI connector
Network adapter	One RJ-45 connector
USB 3.0	• One USB 3.0 compliant with power share • One eSATA/ USB 3.0-compliant connector • One USB 3.0 compliant connector
Memory card reader	one 8-in-1 memory card reader
Subscriber Identity Module (SIM) card	one
Smart Card (option)	one
Finger Print (option)	one

Table 24. Display

Feature	Specification
Type	HD Anti Glare
Dimensions:	
Height	205.60 mm (8.09 inches)
Width	320.90 mm (12.63 inches)
Diagonal	355.60 mm (14.00 inches)
Active area (X/Y)	309.40 mm x 173.95 mm
Maximum resolution	1366 x 768 pixels
Maximum Brightness	200 nits
Pixels per inch	112
Contrast ratio	300:1
Megapixels	1.05
Operating angle	180°
Refresh rate	60 Hz
Minimum Viewing Angles:	
Horizontal	+/- 40°
Vertical	+10/-30°
Pixel pitch:	0.22 mm
Power consumption (maximum)	3.8 W

Table 25. Keyboard

Feature	Specification
Number of keys	83 (U.S. and Canada), 84 (Europe), 85 (Brazil), and 87 (Japan)
Layout	QWERTY/AZERTY/Kanji

Table 26. Touchpad

Feature	Specification
Active Area:	
X-axis	90 mm (3.54 inches)
Y-axis	44 mm (1.73 inches)

Table 27. Battery

Feature	Specification
Type	lithium ion 3 cell (36 WHr) Ultra mobile
Dimensions:	
Depth	110.73 mm (4.36 inches)
Height	9.70 mm (0.38 inch)
Width	333.87 mm (13.14 inches)
Weight	• 315.00 g (0.69 lb) • 470.00 g (1.03 lb)
Voltage	11.1 VDC
Temperature range:	
Operating	Charge: 0 °C to 50 °C (32 °F to 158 °F) Discharge: 0 °C to 70 °C (32 °F to 122 °F)
Non-Operating	-20 °C to 65 °C (4 °F to 149 °F)
Express charge capable	Yes
Coin-cell battery	• 3–cell lithium ion • 6–cell lithium ion

Table 28. AC Adapter

Feature	Specification
Type	65 W / 90 W
Input voltage	100 VAC to 240 VAC
Input current (maximum)	1.7 A
Input frequency	50 Hz to 60 Hz
Output current	3.42 A (65 W) / 4.62 A (90 W) (continuous)
Rated output voltage	19.5 VDC
Weight:	
65 W	0.29 kg (0.64 lb)
90 W	0.33 kg (0.73 lb)
Dimension:	
65 W	28 mm x 47 mm x 108 mm (1.10 inches x 1.87 inches x 4.25 inches)
90 W	32 mm x 52 mm x 128 mm (1.26 inches x 2.05 inches x 5.04 inches)
Temperature range:	
Operating	0 °C to 40 °C (32 °F to 104 °F)

Feature	Specification
Non-Operating	-40 °C to 70 °C (-104 °F to 158 °F)

Table 29. Physical

Feature	Description
Height	20.90 mm (0.82 inch)
Width	338.20 mm (13.31 inches)
Depth	229.70 mm (9.04 inches)
Weight	
3–cell battery	1.68 kg (3.70 lb)
6–cell battery	1.86 kg (4.10 lb)

Table 30. Environmental

Feature	Specification
Temperature:	
Operating	5 °C to 35 °C (41 °F to 95 °F)
Storage	-40 °C to 65 °C (-40 °F to 149 °F)
Relative humidity (maximum):	
Operating	31 °C 90% RH
Storage	39 °C 95% RH
Altitude (maximum):	
Operating	–16 m to 3048 m (–50 to 10,000 ft) 0° to 35°C
Non-Operating	35000 feet -40° to 65°C
Airborne contaminant level	G1 as defined by ISA-71.04–1985

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Getting Help

Contacting Dell

NOTE: If you do not have an active Internet connection, you can find contact information on your purchase invoice, packing slip, bill, or Dell product catalog.

Dell provides several online and telephone-based support and service options. Availability varies by country and product, and some services may not be available in your area. To contact Dell for sales, technical support, or customer service issues:

1. Visit **dell.com/support**
2. Select your support category.
3. Verify your country or region in the Choose a Country/Region drop-down menu at the top of page.
4. Select the appropriate service or support link based on your need.